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1. **Zygote with zona pellucida reaches uterine cavity by :**

a) 2 days

b) 4 days

c) 5 days

d) 6 days

Correct Answer - B
4 days

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2. In spermatogenesis, independent assortment of paternal and maternal chromosomes occurs during-

a) Primary to secondary spermatocyte

b) Spermatogonia to primary spermatocyte

c) Secondary spermatocyte to spermatids

d) Spermatids to spermatozoa

Correct Answer - A
Answer- A. Primary to secondary spermatocyte

- In spermatogenesis, independent assortment of paternal and maternal chromosomes occurs during meiosis I, in which primary spematocyte) to (2n) is converted into two secondary spermatocytes (In).

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3. Tongue muscles are derived from

a) Lateral plate mesoderm

b) Occipital myotome

c) Intermediate mesoderm

d) Cervical myotome

Correct Answer - B

Ans: B Occipital myotome

Development of the tongue:-

I. Epithelium:

Ant 2/3 -- lingual swellings of 1st arch and tuberculum impar.

Post 1/3 -- large dorsal part of hypobranchial eminence, i.e, 3rd arch.

Posterior most part -- small dorsal part of the hypobranchial eminence, i.e. 4th arch.

II. Muscles:

Derived from occipital myotomes except palatoglossus which is derived from the 6th arch.

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4. Which of the following is remnant of distal umbilical artery?

a) Ligamentum Teres

b) Superior Vescical artery

c) Medial umbilical Ligament

d) Ligamentum arteriosum

Correct Answer - C
Ans.C. Medial umbilical Ligament
Remnant of umbilical artery:-
1. Proximal part : Superior vesical artery
2. Distal part: Medial umbilical ligament

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5. All are derived from neural crest except ?

a) Adrenal medulla

b) Pigment cell in skin

c) Corneal stroma

d) Retinal pigmented epithelium

Correct Answer - D
Ans. is `d' i.e., Retinal pigmented epithelium
Derivatives of neuroectoderm
1. From neural tube : CNS (brain, spinal cord), astrocytes, oligodendrocytes, ependymal cells, retina, pineal gland, neurohypophysis (posterior pituitary), all cranial and spinal motor nerves.
2. From neural crest : Neural crest derivatives are :?
3. Neural derivatives
* Sensory neurons of 5th, 7th, 8th, 9th, 10th cranial nerve ganglia (trigeminal, geniculate, sphenopalatine, submandibular, cochlear, vestibular, otic and vagal parasympathetic ganglia).
* Sensory neurons of spinal dorsal root ganglia.
* Sympathetic chain ganglia and plexus (celiac/preaortic/renal ganglia, enteric plexus in GIT, i.e. Auerbachs and Meissner's)
* Parasympathetic ganglia and plexus of GIT.
* Schwann cells of peripheral nerves, satellite cells of all ganglia.
* Adrenal medulla, chromaffin cells, para follicular C-cells of thyroid gland.
* Melanocytes and melanoblasts.

6. Optic vesicle is derived from -

a) Endoderm

b) Mesoderm

c) Neuroectoderm

d) Surface Ectoderm

Correct Answer - C

Answer- C. Neuroectoderm

- An outgrowth from prosencephalon forms optic vesicle (neuroectodermal structure).
- Proximal part of optic vesicle becomes constricted and elongated to form optic stalk
- Growing optic vesicle comes in contact with surface ectoderm which is thickened to form lens placode.

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7. Digeorge syndrome is characterized by all except ?

a) Congenital thymic hypoplasia

b) Abnormal development of third and fourth pouches

c) Hypothyroidism

d) Hypocalcemic tetany

Correct Answer - C
Ans. is 'c' i.e., Hypothyroidism

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Part of neural tube from which corpus callosum develops

a) Basal lamina

b) Alar lamina

c) Lamina terminalis

d) Basal plate

Correct Answer - C

Ans. is 'c' i.e., Lamina terminalis

- The development of the corpus callosum occurs between the 12th and 16-20th weeks of gestation 6.
- It begins with the genu and then continues posteriorly along the body to the splenium. The rostrum is the last part to be formed.
- Myelination of the corpus callosum occurs in the opposite direction, from the splenium forwards.
- They develop from lamina terminalis which is *cranial part of neural tube* and later lies in the anterior wall of 3rd ventricle.
- The corpus callosum, the largest of cerebral commissures, takes the form of an arch over the third ventricle.
- It connects the neocortices of both sides.

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9. Epithelial lining of urinary bladder ?

a) Squamous

b) Transitional

c) Cuboidal

d) Columnar

Correct Answer - B
Ans. is 'b' i.e., Transitional

- Urothelium (transitional epithelium) is found in renal pelvis, calyces, ureter, urinary bladder, proximal part of urethra.

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10. Female urethra develops from -

a) Urogenital sinus

b) Mesonephric duct

c) Ureteric bud

d) Metanephric Blastema

Correct Answer - A

Ans. A. Urogenital sinus

The female urethra is mainly derived from the urogenital sinus while the urethral plate forms the vestibule and labia minora.

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11. All of the following help in formation of IVC except -

a) The posterior intercardinal anastomosis

b) Terminal portion of right vitelline vein

c) Segment of right cardinal vein

d) Subcardinal sinus

Correct Answer - D

Ans. D. Subcardinal sinus

The inferior vena cava is composed of (from caudal to cranial):

1. Posterior intercardinal anastomosis.
2. The caudal portion of the right supracardinal vein.
3. The right anastomosis between the supracardinal and the subcardinal veins.
4. A segment of the right subcardinal vein.
5. The anastomosis between the right subcardinal and right vitelline veins.
6. The terminal portion of the right vitelline vein.

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12. Kidney parenchyma is derived from -

a) Ureteric bud

b) Mesonephros

c) Metanephros

d) Paramesonephros

Correct Answer - C
Ans. C. Metanephros
Metanephros : This system will form the nephrons and parenchyma of the definitive kidney.

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13. **Facial nerve is a derivative of which of the following branchial arch?**

a) First arch

b) Second arch

c) Third arch

d) Fourth arch

Correct Answer - B

Facial nerve is a derivative of second branchial arch. Muscles of facial expression derived from it are buccinator, auricularis, frontalis, platysma, orbicularis oris and orbicularis oculi. Additional muscles supplied by it are stapedius, stylohyoid, and posterior belly of digastric.

Branchial arch	Cranial nerve	Muscles
First mandibular	Trigeminal	Muscles of mastication: masseter, temporalis, medial and lateral pterygoid. Additional muscles: mylohyoid, anterior belly of digastric, tensor tympani, tensor veli palatini
Third	Glossopharyngeal	Stylopharyngeus
Fourth and sixth	Superior laryngeal, recurrent laryngeal branches of vagus	Pharyngeal and laryngeal muscles: cricothyroid, levator veli palatini, constrictors of pharynx, intrinsic muscles of larynx

Ref: Neuroscience for the Study of Communicative Disorders By Subhash Chandra Bhatnagar page 279.

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14. Leptotene and pachytene are stages ofwhich phases of meiosis -

a) Prophase I

b) Metaphase I

c) Anaphase II

d) Telophase II

Correct Answer - A
Ans. A. Prophase I
Meiosis 1 is divided into following phases :-
l) Prophase 1: It is further divided into following stages:-
1. Leptotene
2. zygotene
3. Pachytene
4. Diplotene
5. Diakinais

2) Metaphase 1
3) Anaphase 1
4) Telophase 1

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15. Pelvic kidneys are due to all except ?

a) Inability to ascend during fetal life

b) Fusion of the lower poles

c) Being blocked by branches of the aorta

d) p53 mutation

Correct Answer - D

Ans. D. p53 mutation

Pelvic kidney

- A fetal pelvic kidney is a condition that results when the kidneys fail to ascend to their normal position above the waist and remain in the pelvis because they are blocked by blood vessels in the aorta.
- Developing kidneys may also fuse together causing what is known as a 'horseshoe kidney"
- A fetal pelvic kidney or horseshoe kidney is generally diagnosed by ultrasound (sonogram) examination before birth.
- Evaluation of the kidneys is part of the routine ultrasound examination done by many obstetricians as part of their prenatal care around the 20s week of pregnancy.

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16. Crypta magna develops from which pouch?

a) 1st

b) 2nd

c) 3rd

d) 4th

Correct Answer - B

Ans. B. 2nd

Medial surface of each tonsil has 15-20 crypts, the largest of which is called Intratonsillar cleft or crypto magna (which represents persistence of the ventral portion of the second pharyngeal pouch).

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17. Which of the following is a traction epiphysis?

a) Distal Radius

b) Mastoid process

c) Tibial Condyles

d) Coracoid Process

Correct Answer - B
Ans. B. Mastoid process

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18. All of the following are true about the liver except ?

a) It is covered by Glisson's capsule

b) Stellate cells are present in the space of Disse

c) Kupfer cells are the defense cells

d) The lobules in the liver are pentagonal

Correct Answer - D
Ans. D. The lobules in the liver are pentagonal
Liver has hexagonal lobules

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19. Hering's canal is present in ?

a) Spleen

b) Liver

c) Kidney

d) Lung

Correct Answer - B
Ans, B. Liver
1he canal of Hering or intrahepatic bile ductules are part of outflow system of exocrine bile product from the liver.
They are found between the bile canaliculi and interlobular bile ducts near the outer edge ofliver lobule.

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20. Herring's bodies are present in?

a) Pars tuberalis

b) Pars intermedia

c) Neurohypophysis

d) Pars terminal is

Correct Answer - C
Ans. C. Neurohypophysis
Herring bodies or neurosecretory bodies are structures found in the posterior pituitary (neurohypophysis).

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21. All of the following are true about thymus except?

a) The cortical portion is mainly composed of lymphocytes

b) The medulla contains Hassall's Corpuscles

c) It is derived from the fourth Pharyngeal pouch

d) It undergoes atrophy puberty onwards

Correct Answer - C

Ans. C. It is derived from the fourth Pharyngeal pouch

The thymus is a specialized primary lymphoid organ of the immune system. Within the thymus, T cells or T lymphocytes mature.

The thymus is largest and most active during the neonatal and pre-adolescent periods. By the early teens, the thymus begins to atrophy and thymic stroma is mostly replaced by adipose (fat) tissue

Thymus is derived from the third pharyngeal pouch

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22. Auerbachs plexus is present in the -

a) Colon

b) Esophagus

c) Stomach

d) All of the above

Correct Answer - D
All of the above

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23. Which of the followinglayer is absent in the esophagusa -

a) Adventitia

b) Serosa

c) Muscularis propria

d) Mucosa

Correct Answer - B
Ans. B. Serosa
The esophagus also has an adventitia, but not a serosa

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24. Which is the most abundant cartilage-

a) Hyaline cartilage

b) Elastic cartilage

c) Fibrocartilage

d) None

Correct Answer - A
Ans. A. Hyaline cartilage

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25. Haustrations are present in -

a) Duodenum

b) Ileum

c) Jejunum

d) Colon

Correct Answer - D

Ans. is 'd'i.e., Colon [Rel BDC #/e Vol.2 p. 2661

1. Characteristics features of large intestine (colon) are:-i) 3longitudinal bands, formed by longitudinal muscle coat, called Taeniae coli.
2. Sacculation or haustration
3. Fat filled peritoneal pouches called appendices epiploicae. These are not found in appendix, caecum and rectum.
4. Greater part is fixed except for appendix, transverse colon and sigmoid colon.
5. Pyere's patches (present in small intestine) are not present.

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26. What is the lining of the lacrimal gland alveoli?

a) Ciliated columnar cells

b) Pyramidal cells

c) Non keratinizing squamous epithelium

d) None

Correct Answer - B
Ans. B. Pyramidal cells
Alveoli of the gland are lined by pyramidal cells, which show lightly stained apical secretary granules.

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27. What type of muscles are medial two lumbricals?

a) Unipennate

b) Bipennate

c) Multipennate

d) None

Correct Answer - B
Ans. B. Bipennate

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28. Ansa nephroni is lined by ?

a) Columnar

b) Squamous epithelium

c) Cuboidal and columnar epithelium

d) Stratified squamous epithelium

Correct Answer - B
B i.e. Squamous epithelium

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29. Four carpal bones are present at what age?

a) 3 years

b) 4 years

c) 5 years

d) 6 years

Correct Answer - B
4 years REF: Parikh 6' edition page 2.9
Between 2 to 6 years, the number of carpal bones present on X ray represents the approximate age in years, as for example, four carpal bones — 4 years.

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30. What is the level of the spine of scapula?

a) T7

b) T I 0

c) T4

d) T2

Correct Answer - C
Ans. C. T4
Spine of scapula is at T3T4level

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31. Which of the following muscles carries out shoulder abduction from 15 to 90 degrees?

a) Suprapinatus

b) Trapezius

c) Deltoid

d) Serratus Anterior

Correct Answer - C
Ans. C. Deltoid

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32. Which muscle acting on the thumb has dual nerve supply?

a) Flexor Pollicis Longus

b) Flexor Pollicis brevis

c) Adductor Pollicis

d) Opponens Pollicis

Correct Answer - B
Ans. B. Flexor Pollicis brevis

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33. What is Wartenberg's sign?

a) Inability to maintain Intrinsic plus position

b) Inability to adduct small finger against the ring finger

c) Inability to grasp a book between the thumb and index finger

d) Inability to move the middle finger sideways

Correct Answer - B
Ans, B. Inability to adduct small finger against the ring finger
Wartenberg's sign is inability to adduct the small finger in against the ring fnger due to weakness of palmar interosseous muscles.

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34. Sensory region of the ulnar nerve is?

a) Tip of little finger

b) Tip of index finger

c) 1st web space

d) Lateral upper aspect of arm

Correct Answer - A
Ans. A. Tip of little finger

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35. Pulp of the index finger is supplied by

a) Median nerve

b) Radial nerve

c) Ulnar nerve

d) Axillary nerve

Correct Answer - A
Ans, A. Median nerve

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36. Low radial nerve [just after spiral groove] palsy does not produce ?

a) Loss of wrist extention

b) Loss of elbow extention

c) Loss of finger extention

d) Loss of thumb extention

Correct Answer - B

Ans. B. Loss of elbow extention

- Low radial nerve palsy
  - Injury is after the spird groove.

Low radial nerve palsy may be of two types :

i) Type I: - Injury occurs between the spiral groove and elbow joint.

Muscles involvement is : -

1. Elbow ertensors (Triceps, anconeus) are spared.
2. Wrist, elbow and finger extensors are paralysed.
3. Sensory loss in first web space (on dorsal side)

Ii) Type II: - Injury occurs below the elbow joint.

1. Elbow extensors (triceps, anconeus) and wrist extensors (ECRL) are spared.
2. Finger extensors (extensor digitorum, extensor digiti minimi, extensor indicis) and thumb extensors (extensor pollicisc longus & brevis) are paralysed.
3. Sensory loss in first web space (on dorsal side).

If lesion is low

a) Type 1

- Wrist drop, thumb drop and finger drop.
- Elbow extension is preserved.
- Sensory loss over the dorsum of first web space.

b) Type 2

- Thumb drop and finger drop
- Elbow and wrist extension is preserved
- Sensory loss over the dorsum of first web space

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37. Infraspinous fossa of scapula contains which of the following muscles?

a) Subscapularis

b) Infraspinatus

c) Teres major

d) Supraspinatus

Correct Answer - B
Ans. B. Infraspinatus
Infraspinatus attaches medially to the infraspinous fossa of the scapula and laterally to the middle facet of the greater tubercle of the humerus.

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38. Structure passing deep to flexor retinaculum at wrist:

a) Ulnar nerve

b) Median nerve

c) Radial nerve

d) Ulnar artery

Correct Answer - B

The flexor retinaculum stretches across the front of the wrist and converts the concave anterior surface of the hand into an osteofascial tunnel, the carpal tunnel, for the passage of:

- The median nerve
- Flexor tendons of the thumb (flexor pollicis longus) and fingers (flexor digitorum superficialis and profundus).
- Radial and the ulnar bursa

It is attached medially to the pisiform bone and the hook of the hamate and laterally to the tubercle of the scaphoid and the trapezium bones.

The attachment to the trapezium consists of superficial and deep parts and forms a synovial-lined tunnel for passage of the tendon of the flexor carpi radialis.

The lower border is attached to the palmar aponeurosis.

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39. Coracoacromial ligament resists which movements?

a) Upward displacement of humeral head

b) Abduction of shoulder

c) Inferior displacement of humerus

d) External rotation

Correct Answer - A

Ans. A. Upward displacement of humeral head

The coracoacromial ligament is a flat triangular band that plays a supportive role for the shoulder joint.

Coracoacromial prevents Upward displacement of humeral head.

It has two part, conoid (medial) and trapezoid (lateral). The weight of the upper limb is transmitted to the medial two-third of the clavicle and thence to the axial skeleton through the coraco-clavicular ligment.

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40. Coracohumeral ligament inserts on?

a) Greater tuberosity

b) Lesser and greater tuberosities

c) Anatomical neck of humerus

d) Bicepetal groove

Correct Answer - B

Ans. B. Lesser and greater tuberosities

Coracohumeral ligament :

- An extraarticular ligament on the lateral surface ofcoracoid and inserts into the greater and lesser tuberosities, spanning the bicipital groove.
- Sectioning of coracohumeral ligaments produces anteroinferior instability.
- Represents folded thickening of glenohumeral capsule in area of rotator interval between subscapularis & supraspinatus.
- W/body upright & arm in dependent position, coracohumeral & MGHL play important roles in resisting inf translation.

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41. What is the action of anconeus?

a) Primary elbow extensor

b) Assists Extension of elbow

c) Wrist extension

d) Thumb Abduction

Correct Answer - B
Ans. B. Assists Extension of elbow
Anconeus = Its role in elbow extension is trivial in humans. It assists in extension of the elbow, where the triceps brachii is the principal agonist, and supports the elbow in full extension.

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42. Which muscle helps in climbing a tree ?

a) Latissimus Dorsi

b) Rhomboideus

c) Trapezius

d) Levator scapulae

Correct Answer - A
Ans. A. Latissimus Dorsi
Climbing of tree is helped by:
1. Latissimus Dorsi
2. Pectoralis major

Latissimus Dorsi is also known as "climber's muscle" or "Tree climbing muscle".

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43. Posterior interosseus artery is a branch of ?

a) Common interosseus artery

b) Radial artery

c) Median artery

d) Brachial artery

Correct Answer - A

Ans. A. Common interosseus artery

The common interosseous artery, about 1 cm. in length, arises immediately below the tuberosity of the radius from the ulnar artery.

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44. Which muscle protects the brachial plexus in case of clavicle fractures?

a) Subclavius

b) Supraspinatus

c) Subscapularius

d) Teres Minor

Correct Answer - A
Ans. A. Subclavius
The subclavius protects the underlying brachial plexus and subclavian vessels from a broken clavicle.

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45. Which of the following is true about deep palmar arch?

a) Mainly formed by the radial artery

b) Ulnar artery has no contribution to it

c) It gives off 5 perforating branches

d) It does not anastomose with the superficial palmar arch

Correct Answer - A

Ans. A. Mainly formed by the radial artery

Deep palmar arch

- It lies across the base of metacarpal bones. It is formed mainly by radial artery and completed by a deep branch of the ulnar artery.

Its branches are:-

- Three palmar metacarpal arteries
- Three perforating arteries
- Recurrent branches
- The deep palmar arch lies deep to the oblique head of adductor pollicis, long flexor tendon, and lumbrical muscles and passes across the base of metacarpal and interossei.

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46.

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Which part of scapula can be palpated in the infraclavicular fossa?

a) Coracoid process

b) Spine of scapula

c) Inferior angle

d) Supraspinous fossa

Correct Answer - A

Ans. A. Coracoid process

The coracoid process is a thick curved process attached by a broad base to the upper part of the neck of the scapula; it runs at first upward and medial ward; then, becoming smaller, it changes its direction, and projects forward and lateralward.

It is palpable just below the clavicle.

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47. Flexor carpi radialis inserts into ?

a) Base of 5th metatarsal

b) Base of 2nd and 3rd metacarpal

c) Scaphoid and trapezium

d) Capitate and hamate

Correct Answer - B

Ans., B. Base of 2nd and 3rd metacarpal

Flexor carpi radialis

- Origin: Medial epicondyle of the humerus.
- Insertion: Base of second and third metacarpals.
- Nerve supply: Median nerve.
- Action: Pronator of the forearm, weak flexor of elbow.

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48. What is true about lateral tibial condyle ?

a) Iliotibial tract is attached to the lateral condyle of tibia

b) Ligamentum patellae inserts on it

c) Medial collateral ligament is attached to it

d) Semimembranosus is attached to it

Correct Answer - A

Ans. A. Iliotibial tract is attached to the lateral condyle of tibia

* Tibia is the second longest bone (after femur).
* Proximal end (upper end)
  - Proximal (upper) end of tibia includes medial and lateral condyles, forming tibial plateau. It also includes tibial tuberosity and intercondylar area (area between medial and lateral condyle).
  - Distal end
* Medial malleolus gives attachment to deltoid ligament (medial collateral ligament) of ankle.

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49. Weakness of extensor Hallucis longus is due to which nerve root mainly?

a) L5

b) L4

c) S1

d) S2

Correct Answer - A
Ans. A. L5

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50. Which of the following is common between the medial and lateral plantar arch?

a) Flexor Digitorum Brevis

b) Plantar Fascia

c) Spring Ligamnet

d) Deltoid Ligament

Correct Answer - B
Ans, B. Plantar Fascia
Plantar fascia acts as a tie beam for both medial and lateral plantar arches.

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51. Which tendon is lodged in the groove on posterior surface of lateral malleolus?

a) Peroneus longus

b) Tibialis anterior

c) Tibialis posterior

d) Flexor Hallucis Longus

Correct Answer - A
Ans, A. Peroneus longus
Peroneus longus ends in a long tendon, which runs behind thelateral malleolus, in a groove common to it.

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52. All of the following are true about tibialis anterior except ?

a) It is supplied by the superficial peroneal nerve

b) It dorsiflexes the foot

c) It is closely related to the anterior tibial vessels

d) It inserts on the medial cuneiform

Correct Answer - A

Ans. A. It is supplied by the superficial peroneal nerve

Tibialis anterior

- It is situated on the lateral side of the tibia; it is thick and fleshy above, tendinous below.
- The tibialis anterior overlaps the anterior tibial vessels and deep peroneal nerve in the upper part of the leg.

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53. Attachment on posterior surface of sacrum?

a) Multifidus Lumborum

b) Iliacus

c) Coccygeus

d) Piriformis

Correct Answer - A
Ans, A. Multifidus Lumborum
Attachements on sacrum
A) Posterior Surface
Multifidus lumborum –

- The deepest muscle arising from the sacrum.
- Some of its fibers cover the uPper two sacral foramina.
- This muscle attaches to the transverse processes of the superior vertebrae and is therefore able to help stabilize the spine.

Erector spinae –

- Partly arises from the posterior sacrum and the sacrospinous ligament.
- It is essential in achieving extension and lateral bending of the head and vertebral column

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54. Structures passing through sacral hiatus are ?

a) S4 nerve root

b) S2 nerve root

c) S3 nerve root

d) S5 nerve root

Correct Answer - D
Ans. D. S5 nerve root
Sacral hiatus

- The sacral hiatus corresponds to the posterior caudal opening at the end ofthe sacral canal, which usually occurs at the fifth sacral vertebra (S5), at the posterior surface ofthe sacrum.

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55. Longest cutaneous nerve in body ?

a) Lateral cutaneous nerve of thigh

b) Medial cutaneous nerve of thigh

c) Saphenous nerve

d) Sural nerve

Correct Answer - C

Ans, C. Saphenous nerve

The saphenous branch of the femoral nerve (saphenous nerve) is the longest cutaneous nerve. It runs with the great saphenous vein in front of medial malleolus and supplies the skin of anteromedial aspect of the leg and medial border of the foot. The saphenous nerve may be damaged in front of the medial malleolus during venesection of the long saphenous vein.

Therefore, femoral nerve damage can cause sensory loss over the area of the great saphenous vein in the leg.

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56. Oblique popliteal ligament is derived from ?

a) Semitendinosus

b) Biceps femoris

c) Adductor magnus

d) Semimembranosus

Correct Answer - D

Ans, D. Semimembranosus

Oblique popliteal ligament

- It is an expansion from the tendon of semimembranosus attachment to intercondylar line of femur.
- It is closely related to popliteal artery and is pierced by middle genicular vessels and nerve and the terminal part of the posterior division of the obturator nerve.

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57. Lateral border of the foot receives its sensory supply from ?

a) Saphenous nerve

b) Sural nerve

c) Deep peroneal nerve

d) Sciatic nerve

Correct Answer - B
Ans. B. Sural nerve

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58. All of the following is included in chest wall except?

a) Ribs

b) Thoracic Vertebrae

c) Sternum

d) Lumbar vertebrae

Correct Answer - D
Ans, D. Lumbar vertebrae

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59. Respiratory bronchioles are formed from ?

a) Principal bronchus

b) Terminal bronchioles

c) Tertiary Bronchus

d) Lobar bronchioles

Correct Answer - B
Ans, B. Terminal bronchioles
Terminal bronchiole emnate into respiratory bronchioles. Repiratory bronchioles proceed into the alveolar ducts, which immediately branch into alveolar sacs (alveoli).

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60. Segment of bronchi distal to primary bifurcation?

a) Primary bronchi

b) Terminal bronchiole

c) Respiratory bronchiole

d) Sencondary bronchi

Correct Answer - A
Ans. A. Primary bronchi

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61. The cricopharyngeal sphincter is how far from the central incisor?

a) 15cm

b) 25cm

c) 40cm

d) 50cm

Correct Answer - A
Ans, A. 15cm
At the level of T1O vertebra, its passage through esophageal hiatus of diaphram lower esophageal sphincter- 37.5-40 cm (f5-f6 inches) from incisor

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62. Which of the following structures is related to the esophagus 22.5cm from the incisor teeth?

a) Arch of aorta

b) Right principal broncus

c) Thoracic Duct

d) Azygous Vein

Correct Answer - A
Ans, A. Arch of aorta
2d constriction is at T4 level where arch of aorta crosses esophagus.

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63. Thoracic duct opens into systemic circulation at?

a) junction of SVC and left brachiocephalic vein

b) Junction of left internal jugular and left subclavian vein

c) Directly into coronary sinus

d) Into azygous vein

Correct Answer - B

Ans. B. Junction of left internal jugular and left subclavian vein

Thoracic duct begins as a continuation of the upper end of the cisternachy linear the lower border of T12 vertebra and enters the thorax through the aortic opening of diaphragrn (at T12). It then ascends through the posterior mediastinum and at T5 level crosses from right side to the left side and ascends along left margin of oesophagus to enter the neck. At the level of C7 vertebrae, arches towards left side to open into left brachiocephalic vein at the angle of union of left subclavian and left internal jugular veins.

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64. Sympathetic supply of the heart is from ?

a) Vagus

b) Thoracic sympathetic fibres [T1 to T5]

c) Lumbar sympathetic fibres

d) Cervical ganglion

Correct Answer - B
Ans, B. Thoracic sympathetic fibres [T1 to T5]

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65. Which of the following are cusps of the aortic valves?

a) Left, right and Anterior

b) Anterior, Right and Posterior

c) Posterior, Left and Right

d) Anterior, Posterior and Left

Correct Answer - C
Ans, C. Posterior, Left and Right
The aortic valve is a semilunar valve with three cusps which include left, right and posterior.

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66. Which is the widow's artery in myocardial infarction?

a) Left anterior descending artery

b) Right coronary artery

c) Posterior interventricular artery

d) Left circumflex artery

Correct Answer - A

Ans, A. Left anterior descending artery

The anterior interventricular branch of the left coronary artery, (also left anterior descending artery (LAD), or anterior descending branch) is a branch of the left coronary artery.

Occlusion of this artery is often called the widow-maker infarction and hence this artery is called a widow’s artery.

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67. Which of the following passes posterior to the hilum of the lung?

a) Vagus

b) Phrenic nerve

c) SVC

d) Right atrium

Correct Answer - A
Ans, A. Vagus

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68. What is the level of the pulmonary valve?

a) 3rd intercostal space

b) 4th costal cartilage

c) 3rd costal cartilage

d) 2nd intercostal space

Correct Answer - C
Ans, C. 3rd costal cartilage

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69. Lower limit of the inferior border of the lung in the midaxillary line is ?

a) 6^{th} rib

b) 8^{th} rib

c) 10^{th} rib

d) 12^{th} rib

Correct Answer - B

Ans, B. 8^{th} rib

The lower limit of the inferior border of the lung is 2 ribs above the reflection of the pleural.

In the midaxillary line the pleura reflects at the 10^{th} rib and hence the lower limit of the lung is 8^{th} rib.

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70. Which is a typical intercostal nerve?

a) First

b) Second

c) Third

d) Seventh

Correct Answer - C
Third
"Typical intercostal nerves are the ones that are confined to their own intercostal spaces in the thoracic wall. The third, fourth, fifth and sixth intercostal nerves are the typical nerves"

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71. Great cardiac vein lies in ?

a) Tricuspid valve

b) Anterior interventricular sulcus

c) Posterior interventricular sulcus

d) None

Correct Answer - B

Ans. is 'B' i.e., Anterior interventricular sulcus [Ref **BDC** 4th/e Vol. I, p. 251-252; Keith Moore Clinical Anatomy hlth/e p. 136-137; Snell's Clinical Anatomy9th/e p. 121]

- (Atrioventricular) sulcus → Great cardiac vein, coronary sinus, Small cardiac vein, RCA, LCX.
- Anterior interventricular sulcus → Great cardiac vein, left anterior descending (interventricular) artery.
- Posterior interventricular sulcus → *Middle cardiac vein,* Posterior interventricular branch of RCA.

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72. Apex at of the lung lies at what level?

a) Above the clavicle

b) Below the clavicle

c) At the level of the clavicle

d) None

Correct Answer - A

Ans. is 'a' i.e., Above the clavicle ***[Ref BDC 4thie p. 222-228]***

Apex lies in the inlet of thorax, 2-5 cm above the clavicle. It is related *anteriorly* to subclavian artery and vein. Posteriorly it is separated from neck of first rib by (from medial to lateral) sympathetic trunk, fist posterior intercostal vein, superior intercostal artery, and ascending branch of ventral ramus of 1" thoracic nerve.

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73. Diaphragm is supplied by ?

a) Phrenic nerve

b) C2,C3,C4 Roots

c) Thoracodorsal nerve

d) Long thoracic nerve

Correct Answer - A

Ans. is 'a' i.e.,Phrenic nerve *[Ref BDC 6th/e **Vol** I p. 192, fig. 12.12]*

Nerve supply

- **Motor :- Phrenic nerve** (C3C4C5).
- Sensory :- i) centrally by phrenic nerve.
- Peripherally by lower 6 intercostal nerves.

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74. Midpoint between suprasternal notch and pubic symphyses passes through which plane?

a) Transpyloric plane

b) Transtubercular plane

c) Trnasxiphoid plane

d) None

Correct Answer - A

Ans. is 'a' i.e.,Transpyloric plane [Ref BDC Vol-2 6th/e p. 229]

Anterior abdominal wall is divided into **9 regions** with the help of two vertical and two horizontal planes.

The horizontal planes include : -

1. **Transpyloric plane (of Adison) :- It** lies midway **between the suprasternal notch and pubic symphysis. It passes anteriorly through tips of 9'h costal cartilage and posteriorly through lower border of L, vertebra.** Organs present at this level are **hilum of kidney,** pylorus of stomach, beginning of duodenum, neck of pancreas, **fundus of gall bladder** and origin of SMA.
2. **Transtubercular plane :-** It connects the tubercles of iliac crests and pass through upper border of L_5 vertebra.

The two **vertical planes** are right and left **lateral planes** passing through midinguinal point (also called as **midinguinal plane or midclavicular plane).**

The nine regions from above downwads are -

1. In middle :- Epigastrium, umblical, hypogastrium.
2. **On** right side :- Right hypochondrium, right lumbar, and right inguinal

(iliac) regions.

3. **Left side :- Left** hypochordrium, left lumbar and left inguinal (iliac) regions.

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75. Muscle lying between anterior and middle layer of thoracolumbar fascia is ?

a) Psoas major

b) Quadratus Lumborum

c) Obdurator internus

d) External oblique

Correct Answer - B

Ans. is 'b' i.e., Quadratus Lumborum *[Ref BDC **6th le Vol. 2** p. 343; **Snell 9" /e** p. 695]*

Quadratus lomborum is enclosed between anterior and middle layers. **Erector spinae (paraspinal muscle)** is **enclosed between** middle and posterior layer.

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76. Anterior Rectus Sheath just above pubic symphysis is formed by ?

a) External Oblique Aponeurosis

b) The aponeurosis of three muscles including External Oblique, Internal Oblique, and Transversus Abdominis

c) Linea Alba

d) Internal Oblique only

Correct Answer - B

Ans. is 'B' i.e., Aponeurosis of three muscles including External Oblique, Internal Oblique, and Transversus Abdominis

- The anterior wall just above the symphysis pubis (area below the arcuate line) → is formed by aponeurosis of all three muscles (external oblique, internal oblique, transversus abdominis).
- Three aponeurotic layers forming rectus sheath of both sides interlace with each other to form a tendinous raphe, Linea alba. It extends from the xiphoid process to pubic symphysis.
- Linea alba is narrow and indistinct below the umbilicus, as two recti lie in close contact. Linea alba broadens out above the level of the umbilicus.

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77. Right suprarenal vein drains into ?

a) Inferior vena cava

b) Right renal vein

c) Left renal vein

d) Accessory Hemiazygous vein

Correct Answer - A

Ans. is 'a' i.e., Inferior vena cava

Arterial supply of adrenal gland is by three arteries:-

1. Superior suprarenal artery (branch of the inferior phrenic artery);
2. Middle suprarenal artery (branch of abdominal aorta); and
3. inferior suprarenal artery (branch of the renal artery).

Venous drainage is through the suprarenal veins.

Right suprarenal (adrenal) vein drains into IVC and left suprarenal vein drains into the left renal vein and then into IVC.

Lymphatics from suprarenal glands drain into lateral aortic (para-aortic) nodes.

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78. Which of the following is not derived from the external oblique aponeurosis?

a) Inguinal Ligament

b) Lacunar ligament

c) Line Semilunaris

d) Pectineal Ligament

Correct Answer - C

Ans. is 'c' i.e., Line Semilunaris [Ref BDC 6th/e Vol 2 p. 343; Snell 9[1]Ve p. 695]

External oblique → Inguinal (Pouparts) ligament

- Lacunar ligament Mnemonic : IPL
- Pectineal (cooper's) ligament
- Superficial inguinal ring
- External spermatic fascia
- Internal oblique → Cremasteric fascia & muscle
- Along with tendon of transversus abdominis forms conjoint tendon

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79. Stomach is supplied by ?

a) Coeliac trunk

b) Splenic artery

c) Gastroduodenal artery

d) All of the above

Correct Answer - D
Ans. is 'd' i.e., All of the above

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80. **What is the number of layers in greater omentum?**

a) 1

b) 2

c) 3

d) 4

Correct Answer - D

The greater omentum is folded back on itself and is therefore made up of four layers of closely applied visceral peritoneum, which are separated by variable amounts of adipose tissue.

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81. Stomach wall is mainly drained by all lymphnodes except?

a) Pyloric nodes

b) Short gastric vessel nodal group

c) Right gastroepiploic nodes

d) Inguinal nodes

Correct Answer - D

Ans. is 'd' i.e., Inguinal nodes *[Ref Gray's anatomy 20th edition]*

The stomach is drained by four groups of lymph nodes :

1. Left gastric arterial nodal group, which follows the left gastric artery and drain into the celiac nodes. They drain the lesser curvature of the stomach to the left.
2. Short gastric and left gastroepiploic vessels nodal group. The lymphatic vessels which drain the left side of the greater curvature of the stomach follows these vessels and drain into the pancreaticosplenic group of nodes.
3. Right gastroepiploic nodes, which drain the right half of the greater curvature of stomach as far as the pylorus
4. Pyloric nodes which drains the pyloric part of stomach to the hepatic , pyloric and left gastric nodes.

All the vessels enter into the celiac node. From these nodes they pass into the intestinal lymph trunks, which then enter the cisterna chyli or the abdominal confluence of lymph trunks. The cisterna chyli drains into the thoracic duct.

82. All lymph of stomach drains into ?

a) Pyloric nodes

b) Short gastric vessel nodal group

c) Right gastroepiploic nodes

d) Coeliac nodes

Correct Answer - D
Ans. 'D' i.e., Coeliac nodes
All the vessels enter into the celiac node.
From these nodes, they pass into the intestinal lymph trunks, which then enter the cisterna chyli or the abdominal confluence of lymph trunks.
The cisterna chyli drains into the thoracic duct.

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83. Gall bladder is realted to which segment of the liver?

a) I

b) II

c) III

d) IV

Correct Answer - D

Ans. is 'd' i.e., IV *[Ref Gray's 40th le p. 1163-1167; Sabiston 18th/e p. 1584]*

- The gall bladder lies on the inferior surface of the liver closely related to segment IV or the quadrate lobe.
- Anatomically liver is divided into a large right lobe and a small left lobe by line of attachment of falciform ligament (anterosuperiorly), fissure for ligamentum teres (inferiorly), and fissure for ligamentum venosum (posteriorly).
- Right lobe is much larger and forms five sixth of liver and left lobe forms only one sixth. Caudate lobe and quadrate lobe are parts of anatomical right lobe.
- The physiological left lobe is composed of 4 segments designated Ito IV and is supplied by left branch of hepatic artery, left branch of portal vein and drained by left hepatic duct.
- The physiological right lobe consists of segment V, VI, VII and VIII and is supplied by right hepatic artery, right branch of portal vein and drained by right hepatic duct.

84. Which segment of liver drains on both sides ?

a) I

b) II

c) III

d) IV

Correct Answer - A

Ans. is 'A' i.e., I

Caudate lobe (segment I)

- It is situated on the posterior surface of the right lobe.
- It is bounded on right by a groove for IVC, on left by fissure for ligamentum venosum, and inferiorly by porta hepatis (containing hepatic artery, portal vein, hepatic duct bile duct, nerve plexus, and lymphatics).
- Just behind the porta hepatis, the caudate lobe is connected to the rest of the right lobe by the caudate process.
- There is a small rounded elevation to the left, called the papillary process.
- Caudate lobe lies in the superior recess of lesser sac and is related to the crura of the diaphragm, right inferior phrenic artery, and coeliac trunk.
- Caudate lobe (anatomical part of the right lobe) belongs physiologically to both right and left lobes because it receives blood from the right and left hepatic arteries; right and left branches of the portal vein, and drains bile into both the right and left hepatic duct. Thus it is considered as the physiologically independent lobe.

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85. Caudate lobe of the liver - True is?

a) It receives blood supply from both right and left hepatic arteries

b) It is Segment II of the liver

c) It is situated on the anterior surface of liver

d) It lies between the aorta and ligamentum venosum

Correct Answer - A

Ans. is 'a' i.e., It receives blood supply from both right and left hepatic arteries *[Ref Ramesh Babu p. 249]*

Caudate tube (segment I) is situated on posterior surface of liver between IVC & ligamentum venosum. It receives blood supply from right & left arteries.

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86. Superior border of epiploic foramen formed by -

a) Caudate lobe

b) Hepatic artery

c) Bile duct

d) IVC

Correct Answer - A

Ans. is 'a' i.e., Caudate lobe

Epiploic foramen (foramen of Winslow or aditus to lesser sac) is a slit-like opening through which lesser sac communicates with greater sac. It is situated at the level of T12 vertebra. Its boundaries are:-

- Anterior:- Right free margin of lesser omentum (contains portal vein, hepatic artery proper and bile duct).
- Posterior:- IVC, right suprarenal gland and T12 vertebra.
- Superior:- *Caudate lobe of the liver.*
- Inferior:- 1st part of the duodenum and horizontal part of the hepatic artery.

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87. Internal anal Sphincter is formed by ?

a) Puborectalis

b) Circular muscles from lower rectum

c) Longitudinal Involuntary muscles

d) None

Correct Answer - B

Ans. is 'b' i.e., Circular muscles from lower rectum *[Ref BDC 4th/e Vol. H p. 383; Gray's Anatomy 40thie Chapter 67]*

- External sphincter is contributed by fibers from puborectalis part of levator ani muscle (in upper most part); superficial transverse
- perineal muscles anteriorly and anococcygeal raphe posteriorly (in upper third) and anococcygeal ligament (in middle third).

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88. All of the following are true about duodenum except?

a) Fourth part is the shortest part

b) Ampulla of Vater opens through the second part

c) Minor duodenal papilla is in the third part

d) First part appears like a duodenal cap on barium studies

Correct Answer - C

Ans. is 'c' i.e., Minor duodenal papilla is in the third part *[Ref BDC 6'1* Vol. 2 p. 259-262]*

Third part (Horizonal part) :

- It is 10 cm (4 inches) long. It begins at inferior duodenal flexure and passes towards the left in front of IVC behind superior mesenteric vessels and root of mesentery to meet 4th part of duodenum.

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89. Which of the following is a branch of the inferior mesenteric artery?

a) Sigmoid artery

b) Middle colic artery

c) Renal artery

d) Right Colic artery

Correct Answer - A

Ans. is 'a' i.e., Sigmoid artery ***[Ref BDC 6th/e yoi. 2 p. 276]***

Inferior mesentric artery gives following branches ?

1. Left colic artery
2. Sigmoid arteries
3. Superior rectal artery

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90. Waldeyer's fascia connects ?

a) Rectum to sacrum

b) Rectum to uterus

c) Rectum to lateral wall of pelvis

d) Rectum to bladder

Correct Answer - A

Ans. is 'a' i.e., Rectum to sacrum *[Ref Clinical anotomy 2"d le p. 786]*

Support of rectum include

1. Fascia of waldeyer : It attaches the lower part of rectal ampulla to the sacrum. It is formed by condensation of pelvic fascia behind the rectum and encloses the superior rectal vessels and lymphatics.
2. Lateral ligaments of the rectum : It is formed by condensation of pelvic fascia and encloses middle rectal vessels, and branches of pelvic plexuses.
3. Rectovesical fascia of denonvilliers : It extends from rectum (behind) to the prostate and seminal vesicle in front.
4. Pelvic peritoneum and related vascular pedicles.

Perinea(body with its muscles.

91. Content of Alcock's canal is ?

a) Internal pudendal artery

b) Internal iliac artery

c) Inferior rectal vein

d) Inferior mesenteric vein

Correct Answer - A

Ans. is 'a' i.e.,Internal pudendal artery *[Ref BDC 6th/e Vol-2 p. 362]*

- Pudendal canal (Alcock's canal) is a fascial canal in the lateral wall of ischeorectal (ischeo-anal) fossa, enclosing pudendal nerve and internal pudendal vessels (artery and vein). It is a space between obturator fascia and lunate fascia. Other believe that it is formed by splitting of the obturator fascia.

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92. All of the following organs are in direct contact with the spleen except?

a) Duodenum

b) Stomach

c) Left kidney

d) Colon

Correct Answer - A

Ans. is 'a' i.e., Duodenum

Gross morphology of the spleen

Spleen has two ends (anterior or lateral and posterior or medial), three borders (superior, inferior and intermediate), two surfaces (visceral and diaphragmatic), two angles (anterobasal angle and posterobasal angle) and hilum.

The anterior end is supported by the phrenicocolic ligament.

The superior border is characteristically notched near its anterior end.

The visceral surface is related to the fundus of stomach (at gastric impression), left kidney (at renal impression), splenic flexure of the colon (at colic impression) and tail of the pancreas (at pancreatic impression). Its lower end is related to the *phrenicocolic ligament. The diaphragmatic* surface is related to the diaphragm.

93. Glans penis is a continuation of -

a) Corpus spongiosum

b) Ischiocavernosus

c) Corpora Cavernosa

d) Puborectalis

Correct Answer - A

Ans. is 'A' i.e., Corpus spongiosum

- The penis is the male organ of copulation. The penis has a root and a body.
- The root of the penis is situated in the superficial perinea! pouch, attached to the inferior surface of the perineal membrane. It consists of three masses of erectile tissue: the bulb of the penis and two crura. Each crus continues forward to become the corpus cavernusum (in the body) and the bulb is the posterior end of the corpus spongiosum (of the body).
- The body of the penis is the free portion of the penis. It is composed of three elongated masses of erectile tissues:- right and left corpora cavernosa, and median corpus spongiosum. Corpora cavernosae are enveloped by tunica albuginea and corpus spongiosum is also surrounded by tunica albuginea. The penile urethra runs through the whole length of the corpus spongiosum from the bulb at the back to the terminal expanded part of the corpus spongiosum, called the glans penis.

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94. Which muscle causes opening of the upper end of esophagus?

a) Epiglottis

b) Thyropharungeus

c) Stylopharyngeus

d) Cricopharyngeus of inferior constrictor

Correct Answer - D

Ans. is 'd' i.e., Cricopharyngeus of inferior constrictor ***[Ref Hall, Arthur C. Guyton, John E. (2005). Textbook of medical physiology (11th ed.). Philadelphia: W.B. Saunders. p. 782-784.]***

Upper esophageal sphinctor

- The upper esophageal sphincter surrounds the upper part of the esophagus.
- It consists of skeletal muscle, but is not under voluntary control.
- Opening of the upper esophageal sphincter is triggered by the swallowing reflex.
- The primary muscle of the upper esophageal sphincter is the cricopharyngeal part of the inferior pharyngeal constrictor.

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95. Posterior perforation of stomach, collection of contents occurs in which pouch ?

a) Greater sac

b) Left subhepatic and hepatorenal spaces [pouch of Morrison]

c) Omental bursa

d) Right subphrenic space

Correct Answer - C

Ans. is 'B' i.e., Left subhepatic and hepatorenal spaces [pouch of Morrison]

A posterior gastric ulcer may perforate into the *lesser sac (omental bursa).* The leaking fluid passes out through epiploic foramen to reach the hepatorenal pouch. Sometimes in these cases the epiploic foramen is closed by adhesions. Then the lesser sac becomes distended, and can be drained by a tube passed through the lesser omentum.

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96. Cremastric muscle is formed from ?

a) Fascia from internal oblique

b) Fascia from external oblique

c) Fascia from rectus abdominis

d) Fascia from transversus abdominis

Correct Answer - A

Ans. is 'a' i.e., Fascia from internal oblique

The layers of scrotum from outside to inside are :-

1. Skin
2. Dartos muscle (smooth muscle layer) continuous with Colles fascia of perineum posteriorly and Scarpa's fascia and Camper's fascia anteriorly .
3. The external spermatic fascia, extension from external oblique.
4. The cremasteric muscle, continuous with fascia from internal oblique.
5. The internal spermatic fascia, continuous with fascia from fascia transversalis.

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97. Kidney is covered by what fascia?

a) Sibson's fascia

b) Buck's Fascia

c) Gerota's Fascia

d) None

Correct Answer - C

Ans. is 'c' i.e., Gerota's Fascia *[Ref Farlex Partner Medical Dictionary Farlex 2012]*

Renal fascia

- There are four coverings around the kidney (from within outwords) :- True capsule (fibrous capsule)
- It is formed by the condensation of fibrous stroma of kidney.
- False capsule (renal fascia or fascia of Gerota)
- It is formed by condensation of extra-peritoneal connective tissue around kidney and is continuous laterally with fascia transversalis. False capsule consists of two layers : anterior "fascia of Toldt" and posterior "fascia of Zuckerkendl".

98.

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Narrowest part of ureter is ?

a) Brim of the pelvis

b) Crossing by gonadal vessels

c) Vesicouretric junction

d) Crossing by ductus deferens

Correct Answer - C

Ans. is 'c' i.e., Vesicouretric junction [Ref Campbellis urology 6th le p. 2123; Gray's Anatomy for students 1"/e p. 325]

Ureter measures about 3 mm in diameter, but is constricted at five places

1. Pelviureteric junction
2. Brim of lesser pelvis (at the level of bifurcation of common iliac artery and crossing of external iliac artery
3. Point of crossing of ureter by ductus deferens or broad ligamentl
4. Entry in bladder wall (this vesicoureteral junction is the narrowest part of ureter)
5. Opening in lateral angle of trigone

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99. What is the total length of the colon?

a) 1 metre

b) 1·5 metres

c) 2 metres

d) 4 metres

Correct Answer - B

Ans. is 'b' i.e., 1.5 metres *[Ref BDC Vol. II ele p. 269-273]*

- The large intestine extends from the ileocaecal junction to anus.
- It is 1.5 meters long and is divided into *caecum, ascending colon, right colic (hepatic) flexure, transverse colon, left colic (splenic)flexure, descending colon, sigmoid colon,* the rectum and anal canal.
  Transverse colon is longest part (50 cm) and anal canal shortest (3·8 cm).
- Caecum → 6 cm Sigmoid colon→ 37·5 cm
- Ascending colon -› 12.5 cm Rectum → 12 cm
- Transverse colon → 50 cm Anal canal → 3·8 cm Descending colon → 25 cm

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100. Submandibular lymphnodes drain the following areas of the face except?

a) Medial half of eyelids

b) Central part of lower lip

c) Medial part of cheek

d) Central part of fore head

Correct Answer - B

Ans. is 'b' i.e., Central part of lower lip *[Ref BDC Vol. III 6th/e p. 73]* Lymphatic drainage of face

The face possesses three areas from which lymphatic drainage is as follows:?

1. Upper area, comparising greater part of forehead, lateral Vi of eyelids, conjunctiva, lateral part of cheek and parotid area, drains into preauricular (superficial) parotid nodes.
2. Middle area, comprising central part of forehead, external nose, upper lip, lateral part of lower lip, medial halves of eyelids, medial part of cheek, and greater part of lower jaw, drains into submandibular nodes.
3. Lower area, including central part of lower lip and the chin, drains into submental nodes.

101. Larynx below the vocal cords drain into ?

a) Pretracheal lymph nodes

b) Occipital lymphnodes

c) Mediastinal nodes

d) Lymphatics along the superior laryngeal vein

Correct Answer - A

Ans. is 'a' i.e., Pretracheal lymph nodes

- Supraglottic part (Above vocal cord)
- Lymphatics along the superior laryngeal vein and nodes adjacent to the thyrohyoid membrane
- Infraglottic part (Below vocal cord)
- Pretracheal and prelaryngeal nodes
- Vocal cords
- Devoid of lymphatic supply

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102. Nerve supply to the angle of the mandible is by ?

a) Posterior primary rami of C2, C3

b) Greater auricular nerve

c) Maxillary nerve

d) Mandibular nerve

Correct Answer - B

Ans. is 'b' i.e., Greater auricular nerve

The skin over the angle of the jaw (mandible) is supplied by the anterior division of the greater auricular nerve.

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103. Nerve supply to the tip of the nose is from?

a) The ophthalmic division of the trigeminal nerve

b) Greater auricular nerve

c) The maxillary division of the trigeminal nerve

d) Mandibular nerve

Correct Answer - A

Ans. is 'a' i.e., Ophthalmic division of the trigeminal nerve

Tip of the nose and lower part of the dorsum of the nose are supplied by the external nasal branch of the ophthalmic division of the trigeminal nerve.

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104. Dangerous space in the neck is found between?

a) Buccopharyngeal fascia and alar fascia

b) Prevertebral fascia and alar fascia

c) Buccopharyngeal fascia and Prevertebral fascia

d) None

Correct Answer - B

Ans. is 'b' i.e.,Prevertebral fascia and alar fascia *[Ref "Severe soft tissue infections of the head and neck: a primer for critical care physicians". Lung. 187 (5): 271-9.]*

- The danger space or alar space, is a region of the neck. The common name originates from the risk that an infection in this space can spread directly to the thorax, and, due to being a space continuous on the left and right, can furthermore allow infection to spread easily to either side.
- It is bounded superiorly by the skull base, anteriorly by the alar fascia and posteriorly by the prevertebral fascia. It comes to an end at the level of the diaphragm.
- The retropharyngeal space is found anterior to the danger zone, between the alar fascia and buccopharyngeal fascia

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105. Which muscle is attached to the disc of the temporomandibular joint?

a) Buccinator

b) Lateral pterygoid

c) Masseter

d) Temporalis

Correct Answer - B

Ans. is 'B i.e., Lateral pterygoid ***[Ref BDC 4[15]/e Vol. 3*** **p.** ***145; Last's anatomy 11'"/e***

Lateral pterygoid

- origin→ Upper head: Infra temporal surface & crest of greater wing of sphenoid. Lower head: Lateral surface of lateral pterygoid plate.
- Nerve supply→ Pterygoid fovea on Anterior division of the neck of man → mandibular nerve. an audible, Articular disc and capsule of temporomandibular joint.
- Action → Depresses the mandible. Protrusion and side to side movement.

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106. Maxillary tubercle gives attachment to ?

a) Lateral pterygoid

b) Medial pterygoid

c) Temporalis

d) Masseter

Correct Answer - B

Ans. is 'b' i.e., Medial pterygoid *[Ref BDC Vol III 6th Ie* p. *116]*

Medial Pterygoid

- Origin: *Superficial head:* Tuberosity of maxilla. *Deep head:* Medial surface of lateral pterygoid plate & pyramidal process of palatine bone.
- Insertion: Medial surface of angle mandible & adjoining ramus.
- Nerve supply: Branch from trunk of mandibular nerve
- Action : Elevates the mandible, Protection & side to side movement.

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107. Vidian nerve is also known as?

a) Nerve of Pterygoid canal

b) Greater Petrosal nerve

c) Lesser Petrosal nerve

d) Greater Auricular nerve

Correct Answer - A

Ans. is 'a' i.e., Nerve of Pterygoid canal

- The nerve of the pterygoid canal (Vidian nerve) is formed by the junction of the greater petrosal nerve and the deep petrosal nerve within the pterygoid canal containing the cartilaginous substance, which fills the foramen lacerum.
- It passes forward through the pterygoid canal with its corresponding artery (artery of the pterygoid canal) and is joined by a small ascending sphenoidal branch from the otic ganglion.
- It then enters the pterygopalatine fossa and joins the posterior angle of the pterygopalatine ganglion.

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108. **Which of the following nuclei belong to the general visceral afferent column?**

a) Facial nerve nucleus

b) Trigeminal nucleus

c) Dorsal nucleus of vagus

d) Nucleus ambiguus

Correct Answer - C
Visceral afferent fibers, also called **general visceral afferent fibers,** convey sensation from the alimentary tract, heart, vessels, and lungs by way of nerves IX and X. A specialized visceral afferent component is involved with the sense of taste; fibers carrying gustatory impulses are present in cranial nerves VII, IX, and X. *The general visceral afferent column is represented by part of the dorsal nucleus of the vagus nerve.*

Ref: Waxman S.G. (2010). Chapter 8. Cranial Nerves and Pathways. In S.G. Waxman (Ed), *Clinical Neuroanatomy,* 26e.

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109. Right Recurrent laryngeal nerve loops around?

a) Right subclavian artery

b) Right axillary artery

c) Right External carotid artery

d) Right Superior thyroid artery

Correct Answer - A

Ans. is 'a' i.e., Right subclavian artery *[Ref Larsen, William J. (1993). Human embryology]*

Recurrent laryngeal nerve

- On right side it arises in the root of neck and winds around first part of right subclavian artery. It may be anterior (superficial) or posterior (deep) to inferior thyroid artery.
- On left side it arises in thorax (superior mediastinum) and wind's around the arch of aorta immediately behind the attachment of ligamentum arteriosum. It is usually posterior (deep) to inferior thyroid artery or between its branches.
- Recurrent laryngeal nerve supplies all intrinsic muscles of larynx (except cricothyroid) and mucous membrane of larynx below vocal fold. It also gives branches to deep cardiac plexus, trachea, esophagus and inferior constrictior.
- Inferior thyroid artery is ligated away from gland to avoid injury to nerve. Left nerve is more liable to damage.

110. Left recurrent laryngeal passes between ?

a) Trachea & larynx

b) Trachea & esophagus

c) Esophagus and bronchi

d) Esophagus and aorta

Correct Answer - B

Ans. is 'b' i.e., Trachea & esophagus *[Ref Gray's 38th/e p. 786]*

The paths of the left and right recurrent laryngeal nerves very slightly with the left recurrent laryngeal nerve dividing from the main vegus nerve at the level of the aortic arch.

The left recurrent laryngeal nerve than dips posteriorly around the arotic arch to assend through the superior mediastinum to enter the groove between the esophagus and trachea.

The right recurrent laryngeal nerve divides from the main vagus nerve at the level of the right subclavian artery to enter the superior mediastinum.

The right recurrent laryngeal nerve then dips posteriorly around the subclavian artery to assend in the grove between the esophagus and trachea.

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111. Structures pierced by the parotid duct are all except?

a) Buccopharyngeal fascia

b) Buccinator muscle

c) Buccal fat pad

d) Investing layer of deep cervical fascia

Correct Answer - D

Ans. 'd' i.e., Investing layer of deep cervical fascia

The parotid duct (Stenson's duct)

- Parotid duct emerges from the anterior border of the gland and passes forward over the lateral surface of the masseter and can be palpated at the tense anterior margin of the masseter muscle.
- In its course duct pierces buccal fat pad, buccopharyngeal fascia and buccinator muscle (obliquely) and opens on the mucous membrane of cheek opposite to second upper molar tooth.
- When intraoral pressure is raised (during blowing) the duct is compressed between the buccinator and mucous membrane, preventing inflation of the duct.

112. Which layer of the scalp is vascular?

a) Pericranium

b) Superficial fascia

c) Skin

d) Aponeurosis

Correct Answer - B

Ans. is 'b' i.e., Superficial fascia

The scalp is a soft tissue that covers the calvaria of the skull. It consists of five *layers* and can be memorized by a mnemonic using the initial letters of the word. SCALP:?

- Skin
- Close network of connective tissue (superficial fascia)
- Aponeurosis (galea aponeurotica) with occipitofrontalis muscles
- Loose areolar (subaponeurotic) tissue
- Pericranium (outer periosteum of the skull)

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113. All of the following pass through the Sinus of morgagni except -

a) Auditory tube

b) Levator veli palatini

c) Ascending palatine artery

d) Stylopharyngeus

Correct Answer - D
Ans. 'd' i.e., Stylopharyngeus
Sinus of Morgagni is the large gap between the upper concave border of the superior constrictor and the base of the skull.
The structures passing through it are:
1. Auditory tube
2. Levator veli palatini
3. Ascending palatine artery
4. Palatine branch of ascending pharyngeal artery

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114. Chorda tympani is a branch of ?

a) Facial nerve

b) Trigeminal nerve

c) Greater auricular nerve

d) External laryngeal nerve

Correct Answer - A

Ans. is 'a' i.e., Facial nerve *[Ref: BDC 6th le Vol 3 p. 371]*

Branches of facial nerve

1. In fallopian (facial canal) :- Greater petrosal (greater superficial petrosal) nerve, nerve to stapedius, chorda tympani.
2. At its exit from stylomastoid foramen :- Posterior auricular, digastric nerve, stylohyoid nerve.
3. Terminal branches :- Temporal, zygomatic, buccal, marginal mandibular, and cervical.

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115. Chorda-tympani does not carry which fibers?

a) Preganglionic parasympathetic fibers for sublingual glands

b) Preganglionic parasympathetic fibers for submandibular gland

c) Preganglionic parasympathetic fibers for parotid gland

d) Taste fibers from anterior two third of tongue

Correct Answer - C

Ans. is 'c' i.e., Preganglionic parasympathetic fibers for parotid gland

Chorda tympani is a branch of facial nerve mainly carrying taste sensations from the anterior 2/3rd of the tongue

The chorda tympani carries two types of nerve fibers from their origin with the facial nerve to the lingual nerve that carries them to their destinations:

Special sensory fibers providing taste sensation from the anterior two-thirds of the tongue.

Preganglionic parasympathetic fibers to the submandibular ganglion, providing secretomotor innervation to two salivary glands: the submandibular gland and sublingual gland and to the vessels of the tongue, which when stimulated, cause dilation of blood vessels of the tongue.

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116. Which of the following pass through the Hypoglossal canal?

a) Hypoglossal nerve

b) External jugular vein

c) Facial nerve

d) Mandibular nerve

Correct Answer - A

Ans. is 'a' i.e., Hypoglossal nerve *[Ref BDC 6th/e Vol. 3 p. 18-20]*

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117. Which muscle is antagonist to orbicularis oculi that is not supplied by facial nerve?

a) Levator Palpebrae superioris

b) Orbicularis oris

c) Superior oblique

d) Inferior oblique

Correct Answer - A

Ans. is 'a' i.e., Levator Palpebrae superioris

Orbicularis oculi closes the eye and is supplied by the facial nerve. Levator Palpebrae superioris opens the eyelid and is supplied by the oculomotor nerve.

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118. All of the following are main branches of Trigeminal nerve except ?

a) Mandibular nerve

b) Maxillary nerve

c) Ophthalmic nerve

d) Optic nerve

Correct Answer - D

Ans. is 'd' i.e., Optic nerve *[Ref BDC 6th/e Vol 3* p. 369]

Divisions of trigeminal nerve

1. Ophthalmic division (Ophthalmic nerve : V1)
2. Maxillary division (Maxillary nerve : V2)
3. Mandibular division (Mandibular nerve : V3)

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119. Extension of the retropharyngeal space is between ?

a) Alar fascia and buccopharyngeal fascia

b) buccopharyngeal fascia and prevertebral fascia

c) Alar fascia and Prevertebral fascia

d) None

Correct Answer - A

Ans. is 'a' i.e., Alar fascia and buccopharyngeal fascia

Retropharyngeal space

- The retropharyngeal space is a potential space of the head and neck, bounded by the buccopharyngeal fascia anteriorly and the alar fascia posteriorly. Together with the lateral pharyngeal space, these spaces are termed the parapharyngeal spaces.
- It contains the retropharyngeal lymph nodes.
- Because serious infections of teeth can spread down this space into the posterior mediastinum, it is often confused with the danger space. The danger space is actually between the alar fascia and the prevertebral fascia and extends from the cranial base above to the level of the diaphragm.
- It is limited above by the base of the skull, and below where the alar fascia fuses with the buccopharyngeal fascia at about the level of T4 and the carina.

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120. Delphian nodes are ?

a) Prelaryngeal nodes

b) Occipital nodes

c) Coeliac nodes

d) None of the above

Correct Answer - A

Ans. is 'a' i.e., Prelaryngeal nodes

The Delphian node (prelaryngeal) along with paratracheal nodes, pretracheal nodes, perithyroidal nodes makeup level VI cervical lymph nodes, and is not routinely excised in radical neck dissections. It receives lymph from the thyroid and larynx.

The Delphian node gains its name from the Oracle of Delphi, whose prophecy, in this case, would be of an unpleasant death secondary to laryngeal cancer.

The involvement of this node can be a result of diffuse nodal involvement in head and neck squamous cell carcinoma or isolation from the direct lymphatic spread of laryngeal cancer through the anterior commissure. Thyroid carcinomas may also involve this node.

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121. Straight sinus is formed by?

a) Inferior Sagittal Sinus

b) Internal Jugular veins

c) Superior Sagittal Sinus

d) Tranverse sinus

Correct Answer - A

Ans. is 'a' i.e., Inferior Sagittal Sinus

The straight sinus, also known as tentorial sinus or the sinus rectus, is an area within the skull beneath the brain that receives venous blood.

Straight sinus is *formed by the union of the inferior sagittal sinus with the great cerebral vein.* It is considered a continuation of the inferior sagittal sinus.

It drains into the transverse sinus, most commonly in the left one.

The straight sinus is situated within the dura mater, where the falx cerebri meets the midline of tentorium cerebelli.

In cross-section, it is triangular, contains a few transverse bands across its interior, and increases in size as it proceeds backward.

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122. Which artery supplies the paracentral lobule?

a) Medial Striate artery

b) Calloso Marginal artery

c) Pericallosal artery

d) Frontopolar artery

Correct Answer - B

Ans. is 'b' i.e., Calloso Marginal artery *[Ref BDC Vol. 3 6th/e* p. *461, 462]*

Calloso marginal artery is a branch of anterior cerebral artery that supplies the paracentral lobule which has a role in control of micturition

Anterior cerebral artery

Has following branches :-

1. Medial striate artery (recurrent artery of Heubner) : It supplies caudate nucleus (ventral part), putamen, and anterior limb and genu of internal capsule.
2. Fronto-polar artery : It supplies medial and orbital surfaces of frontal lobe.
3. Orbital branches : It supplies medial and orbital surfaces of frontal lobe.
4. Calloso-marginal artery : It supplies the paracentral lobule and parts of gyrus cinguli.
5. Pericallosal artery : It supplies medial surface of parietal lobe and precuneous.

123. Nucleus of basal ganglia

a) Dentate

b) Thalamus

c) Caudate

d) Red nucleus

Correct Answer - C
Ans: C i.e. Caudate nucleus
The basal ganglia have five nuclei on each side of the brain.
- Caudate nucleus
- Putamen
- Globus pallidus
- Subthalamic nucleus
- Substantia nigra

The caudate nucleus and putamen collectively form the striatum.
The putamen and globus pallidus collectively form the lentiform nucleus.
The globus pallidus is divided into external and internal segments

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124. Most lateral nucleus of cerebellum is ?

a) Dentate

b) Globose

c) Fastigial

d) Emboliform

Correct Answer - A
Ans. is 'A' i.e., Dentate
There are four deep cerebellar nuclei (from lateral to medial) : dentate, emboliform, globose, and fastigial.
The globose and the emboliform nuclei are sometimes lumped together as the interpositus nucleus.

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125.

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Superior marginal gyrus is a part of?

a) Parietal lobe

b) Frontal lobe

c) Temporal lobe

d) Occipital lobe

Correct Answer - A
Ans. is 'a' i.e., Parietal lobe
The superior marginal gyrus is a portion of the parietal lobe. This area of the brain is also known as Brodmann area 40 based on the universally used brain map created by Korbinian Brodmann to define the structures in the cerebral cortex.

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Pars dorsalis is a part of ?

a) Cerebrum

b) Cerebellum

c) Pons

d) Thalamus

Correct Answer - C

Ans. is 'c' i.e., Pons ***[Ref Farlex Partner Medical Dictionary Farlex 2012]***

Pars Dorsalis

- The part of the pons bounded laterally by the middle cerebellar peduncles and anteriorly by the ventral part of pons; it is continuous with the tegmentum of the mesencephalon and contains long tracts such as the medialand lateral lemnisci, cranial nerve nuclei, and reticular formatin.

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127. Arbor vitae are seen in ?

a) Cerebrum

b) Cerebellum

c) Pons

d) Thalamus

Correct Answer - B

Ans. is 'b' i.e.,Cerebellum

- The arborvitae is the cerebellar white matter, so-called for its branched, tree-like appearance.
- In some ways, it more resembles a fern and is present in both the cerebellar hemispheres.
- It brings sensory and motor information to and from the cerebellum.
- The arborvitae is located deep in the cerebellum.
- Situated within the arborvitae are the deep cerebellar nuclei; the dentate, globose, emboliform and the fastigial nuclei.
- These four different structures lead to the efferent projections of the cerebellum.

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128. Total volume of CSF is?

a) 150 ml

b) 500 ml

c) 50 ml

d) 800 ml

Correct Answer - A

Ans. is 'a' i.e., 150ml

The major source of CSF is the choroidal plexus of all 4 ventricles, mainly in two lateral ventricles. Other sources of CSF are ependymal cells of the ventricles and the brain itself, via perivascular spaces.

The total volume of CSF in an adult is about 125-150 ml. The rate of formation of CSF is about 500-550 ml/day. Thus the CSF is replaced 3-4 times every day.

The watery part of CSF is secreted by transduction but each of its constitutions is actively transported. $Na^{\cdot}$ is secreted into the CSF with the help of Na^{+} ATPase. Glucose enters CSF through facilitated diffusion mediated by GLUT-1. HCO_3 is secreted with the help of carbonic anhydrase.

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129. Lateral lemniscus terminates into ?

a) Lateral geniculate body

b) Superior colliculus

c) Inferior colliculus

d) Inferior olivary complex

Correct Answer - C

Ans is 'c' i.e., Inferior colliculus ***[Ref BDC 6th /e Vol. .3 p. 374]***

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130. Internal capsule- All of the following are parts except ?

a) Anterior limb

b) Sublentiform part

c) Retrolentiform

d) Prelentiform

Correct Answer - D

Ans. is 'd' i.e., Prelentiform

The internal capsule is divided from before backwards into following parts:

- Anterior limb
- Posterior limb
- Retrolentiform part
- Genu
- Sublentiform part

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131. Substantia ferruginea is found in -

a) Fourth ventricle

b) Thalamus

c) Midbrain

d) Third ventricle

Correct Answer - A

Ans. is 'a' i.e.,Fourth ventricle ***[Ref Medical Dictionary, 2009 Farlex and Partners]***

It is a shallow depression, of a blue color in the fresh brain, lying laterally in the most rostral portion of the rhomboidal fossa near the cerebral aqueduct; it lies near the lateral wall of the fourth ventricle and consists of about 20,000 melanin-pigmented neuronal cell bodies the norepinephrine-containing axons of which have a remarkably wide distribution in the cerebellum as well as in the hypothalamus and cerebral cortex. Also called as locus cinereus, locus ferrugineus.

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132. Infundibular diverticulum is an extention of ?

a) 1st and 2th ventricles

b) 3rd ventricle

c) 4th ventricle

d) None

Correct Answer - B

Ans. is 'B' i.e., 3rd ventricle

Third ventricle is a midline cavity of diencephalon. It is a median cleft between *two* thalami. Anterosuperiorly it communicates with lateral ventricle through the interventricular foramen (foramen of Monro). Posteroinferiorly it communicates with fourth ventricle through cerebral aqueduct (Duct of Sylvius).

There are four extensions (recesses) of third ventricle : (a) Suprapineal recess, (b) Pineal recess, (c) Infundibular recess, and (d) Optic recess.

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133. Which of the following is a complete sulcus in the brain?

a) Calcarine sulcus

b) Paracentral sulcus

c) Both

d) None

Correct Answer - A

Ans. is 'a' i.e., Calcarine sulcus

The calcarine sulcus (or calcarine fissure) is an anatomical landmark located at the caudal end of the medial surface of the brain of humans and other primates. Its name comes from the Latin "calcar" meaning "spur". It is a complete sulcus.

For accommodation in a limited space within the rigid cranial box, the cerebral cortex is folded into numerous gyri or convolutions separated by sulci or fissures. Eventually the total surface area of the cortex of human brain is increased to about 2200 cm^2, in which only about one third of the cortex is exposed as gyri and two third is hidden in the sulci.

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134. Which of the following is derived from the neural tube except?

a) Retina

b) Brain

c) Dorsal root ganglia

d) Pineal gland

Correct Answer - C

Ans. is 'c' i.e.,Dorsal root ganglia *[Ref Textbook of human embryology -786]*

Nervous system develops from ectoderm (neuroectoderm). Nervous system develops from neural tube which in turn devtlops by process of neurulation, i.e. formation of neural plate and its infolding into neural tube.

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135. Cerebellovestibular fibres pass through ?

a) Superior cerebellar peduncle

b) Middle cerebellar peduncle

c) Inferior cerebellar peduncle

d) None

Correct Answer - C

Ans. is 'c' i.e.,Inferior cerebellar peduncle *[Ref BDC Vol. III 6th le p. 405]*

Inferior cerebellar peduncle →

1. Posterior spinocerebellar
2. Cuneocerebellar (posterior external arcuate fibres)
3. Olivocerebellar
4. Parolivocerebellar
5. Reticulocerebellar
6. Vestibulocerebellar
7. Anterior external arcuate fibres
8. Striae medullares

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136. Long spinous process is seen in ?

a) Cervical vertebrae

b) Thoracic Vertebrae

c) Lumbar Vertebrae

d) Sacrum

Correct Answer - B

Ans. is 'b' i.e., Thoracic Vertebrae ***[Ref: BDC 5th/e Vol. 3 p. 40]***

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137. Movement occuring at atlanto-axial joint?

a) Flexion

b) Bending

c) Rotation

d) Nodding

Correct Answer - C

Ans. is 'c' i.e.,Rotation *[Ref: Clinical anatomy 3rdie p. 786]*

Movments permitted at atlanto-occipital joint are : -

- Flexion and extension (nodding of head), and (ii) *Lateral flexion (bending of neck).*
- Movements permitted at atlanto-axial joints are side-to-side rotation of head (looking towards right-or-left).

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138. Spinal segmental artery is a branch of ?

a) Ascending spinal artery

b) Basilar artery

c) Posterior spinal artery

d) Anterior spinal artery

Correct Answer - A

Ans. is 'a' i.e.,Ascending spinal artery ***[Ref Spinal Cord Medicine. Demos Medical Publishing.]***

Arterial supply of spinal cord

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139. Which of the following is not a permanent mucosal fold?

a) Heister's valves

b) Transverse rectal fold

c) Plicae circularis

d) Gastric rugae

Correct Answer - D

Ans. is 'd' i.e., Gastric rugae ***[Ref Inderbir Singh Histology p. 240;*** **BDC** ***4th/e Vol. H p. 241, 245, 274, 378; Gray's 40th le*** **p.** ***1138, 1120, 1151, 1132, 1178]***

Gastric rugae of stomach, and longitudinal folds in mucosa of upper rectum and colon are temporary mucosal folds and are obliterated by distension. Whereas, plica circularis (valves of kerkring) of small intestine, crescentic mucosal folds of cystic duct (spiral valve of Heister), transverse (horizontal) rectal folds (Houston's valves or plica transversalis) and permanent longitudanal rectal columns or folds (found in

140. Lipid rafts are seen in?

a) Ribosomes

b) Mitochondria

c) Plasma membrane

d) ER

Correct Answer - C

Ans. C. Plasma membrane.

* Lipid rafts are regions in plasma membrane that accumulate Cholesterol and glycolipids (glycosphingolipids).
  - So there regions are slightly thicker than other areas of plasma membrane.
  - Because f distinct molecular composition of lipid rafts, they can act us microcompartment within cells, giving the cell an additional way to organize pathways.
  - Involved in the regulation of signal transduction.

Types of lipid rafts:

* Planar lipid rafts (noncaveolar or glycolipid rafts)
  - Continuous with plane of cell membrane (they are not invaginate).

Caveolae:

* Specialized types of lipid rafts which are flask like invaginations of plasma membrane.
* Produced where caveolin protein is present in lipid bilayer membrane.

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141. Marker of endoplasmic reticulum?

a) Acid phosphatase

b) Glucose-6-phosphatase

c) Catalase

d) LDH

Correct Answer - B

Ans. B. Glucose-6-phosphatase.

Organelle or fraction Markers

- Plasma membrane - Adenyl cyclase, Na+IC ATPase
- Lysosome - Acid phosphatase
- Golgi apparatus - Galactosyl transferase, Golgi mannosidase II, Sialyl transferase, G1cNAc transferase.

Endoplasmic reticulum - Glucose-6-phosphatase

- Peroxisome - Catalase, Urate (uric acid) oxidase
- Cytosol - Lactate dehydrogenase
- Nucleus - DNA
- Ribosome - High content of RNA

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142. Following is a feature of simple diffusion?

a) Against a concentration gradient

b) Easy for non-polar substance

c) More in thick membrane

d) Requires carrier protein

Correct Answer - B

Ans. B. Easy for non-polar substance

Simple diffusion:

- Refers to diffusion of molecule across the membrane following a concentration gradient or chemical gradient, but without the help of any carrier protein.

Factors influencing:

A) Rate of diffusion is directly proportionate :-

- Concentration (chemical) gradient
- Cross-sectional area of the membrane through which diffusion takes place
- Lipid solubility of the substance

B) Rate of diffusion is inversely proportionate:-

- Thickness of diffusion membrane
- Size of the particle
- Charge or polarity of substance
- So, simple diffusion is favored by small size, lipid solubility and absence of polarity (non-polar substance) and charge (neutral molecule) through a thin, large membrane where the concentration gradient is more.

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143. Most common mechanism for transport into the cell?

a) Diffusion

b) Primary active transport

c) Antiport

d) Cotransport

Correct Answer - A
Ans. A. Diffusion.
(Ref Principles of medical physiology p.3.)
Most important and most common mechanism of transport is passive diffusion.

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144. True about Nernst equation?

a) Used to calculate equilibrium potential

b) Calculated for non-ionic solution

c) Nernst potential for Cl is -90 my

d) All are correct

Correct Answer - A

Ans. A. Used to calculate equilibrium potential.

[Ref: Ganong 24th le p.9; Principles of medical physiology p.8]

- RMP value is calculated on basis of Nernst equation.
- Also referred "Nernst potential/Equilibrium potential/Diffusion potential of K+.

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145. ECF concentration of 1C· is 150 meq/L and ICF concentration of le is 5 meq/L. What is the equilibrium potential for K^+ is?

a) +60 mV

b) -60 mV

c) -90 mV

d) +90 mV

Correct Answer - C
Ans. 'c' i.e., -90 mV
Nernst Equation –

- Can be used to find the cell potential at any moment in during a reaction or at conditions other than standard-state.

$$E = E^\circ - \frac{RT}{nF} \ln Q_c$$

- E = cell potential (V) under specific conditions
- E= cell potential at standard-state conditions\
- R = ideal gas constant = 8.314 J/mol-K
- T = temperature (kelvin), which is generally 25C (298 K)
- n = number of moles of electrons transferred in the balanced equation
- F = Faraday's constant, the charge on a mole of electrons = 95,484.56 C/mol
- lnQc = the natural log of the reaction quotient at the moment in time.

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$$EK = \frac{}{+1} \log \frac{}{5} = 90 \text{ mV}$$

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146. Nernnst equation related to equilibrium potential does not depend upon?

a) Concentration gradient

b) Electric gradient

c) Non-ionic solution

d) Concentration of ions in two solution

Correct Answer - C
Ans. C. Non-ionic solution
[Ref Guyton 12th/e p.50; Principles of medical physiology p. 8]
Nernst equation is for ionic solution.

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147. Due to Donnan-Gibbs effect?

a) Concentration of $K^{\cdot}$ is greater in ECF

b) Concentration of cl is greater in ECF

c) Total ions are more in ICF

d) All are true

Correct Answer - C

Ans. C. Total ions are more in ICF

[Ref Principles of medical physiology p.7]

Gibbs-Donnan equilibrium:

- The mammalian cells (intracellular fluid) contains non-diffusible anion like proteins and organic phosphate where as K' and Cl- are diffusible cation and anion, respectively.
- The ECF contains 1K+ and Cl- as diffusible cation and anion respectively.

Due to Gibbs-Donnan equilibrium :-

- Concentraion of Cl- is greater in ICF than ECF (concentration of diffusible cation is greater in compartment with non-diffusible anion).
- Concentration of Cl is greater in ECF than ICF.
- Total number of ions is greater in ICF than ECF.
- All these effects help to maintain the shape and volume of cells by distributing diffusible ions across the membrane according to physiological demand.

148. ATPase is which type of pump?

a) Secondary active

b) Electrogenic

c) Symport

d) All of the above

Correct Answer - B
Ans. B. Electrogenic
[Ref Ganong 24th/e p.51, 10; Guyton 12th/e p.53]
Sodium-potassium pump:
* Most important pump for primary active transport in body.
* An Electrogenic pump.
* Responsible for maintaining Na+ & K+ conc. difference across cell membrane.
Mechanism:
* ICF - High K+ concentration.
* ECF - High Na+ concentration.
* Both Na+ & K+ transported against concentration gradient.
* Uses energy by hydrolyzing ATP;
Functions:
* Pump contains ATPase activity.
* Na+-K+ pump extrudes -
  - 3 Na+ out from cell.
  - Pumps 2 K+ into cell.
  - Coupling ratio of Na+-K+pump - 3:2.

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149. Diffusion related to 0_2 transport across respiratory membrane is an example of?

a) Simple diffusion

b) Facilitated diffusion

c) Active diffusion

d) Osmotic diffusion

Correct Answer - A
Ans. A. Simple diffusion.
[Ref. Ganong 25thle p. 51 & 24thle p. 53]

- Simple diffusion - Movement of fats, oxygen, CO, through lipid portion of membrane.
- Facilitated diffusion - Movement of glucose and some amino-acids.
- Primary active transport - Ions K+, Na*,
- Secondary active transport - Glucose or or amino-acid into the cell along Na` (Sympoft or cotransport) 1-1+ out of the cell against Na+ (Antiport or countertransport).

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150. Measurement of intracellular fluid in a 50 years old male is done by?

a) Dilution method

b) Evans blue

c) D_20

d) Indirectly

Correct Answer - D

Ans. D. Indirectly.

[Ref Ganong 23th/e p. 3-6; Guyton 12th/e p. 286-288]

- Most of the fluid is calculated directly by dilution method, except for intracellular fluid (ICF) and interstitial fluid.
- Both these are calculated indirectly by calculating other body fluids.
- ICF = Total body water volume - ECF volume Interstitial fluid = ECF volume - Plasma volume.

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151. Calculation of interstitial fluid in a 50 years old is done by?

a) TBW minus ECF

b) ECF minus plasma volume

c) ICF minus ECF

d) TBW minus ICF

Correct Answer - B

Ans. B. ECF minus plasma volume.

[Ref Ganong 23th/e p. 3-6; Guyton 12th/e p. 286-288]

- Most of the fluid is calculated directly by dilution method, except for intracellular fluid (ICF) and interstitial fluid.
- Both these are calculated indirectly by calculating other body fluids.
- ICF = Total body water volume - ECF volume Interstitial fluid = ECF volume - Plasma volume.

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152. Excitability of cells is maximally affected by change in concentration of which ion?

a) IC^{+}

b) Na*

c) a-

d) Ca+2

Correct Answer - D
Ans. D. Ca+2
[Ref Principles of medical physiology p.801]
Effects of ion concentration change on membrane potential:
* Hypercalcemia
  - An increase in extracellular Ca2+ concentration can stabilize the membrane by decreasing excitability.
* Hypocalcemia
  - Calcium ion is membrane stabilizers.
  - A decrease in extracellular Ca2+ concentration increases the excitability of nerve by decreasing the amount of depolarization necessary to produce the action potential.
  - Hyperexcitability is seen.

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153. Non-specific pain pathway is for?

a) Nociceptive pain

b) Neuropathic pain

c) Idiopathic pain

d) Inflammatory pain

Correct Answer - C

Ans. C. Idiopathic pain

[Ref Textbook of psychotherapy p.6]

Pain may be divided into: -

Nociceptive pain:

- It is musculoskeletal pain that results from injury or inflammatory or degenerative disorders, e.g. bone fracture or arthritis or burn.

Neuropathic pain:

- It is due to dysfunction/damage of nerves, e.g. prolapse intervertebral disc.

Mixed pain:

- It has components of both nociceptive and neuropathic pains.

Idiopathic or unspecified pain:

- It is purely psychological in nature and is therefore called psychogenic pain.

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154. Dull visceral pain is carried by which type of neurons?

a) A gamma

b) Aa

c) C fibres

d) B

Correct Answer - C
Ans. C. "C" fibers.
[Ref Ganong 24th\e p. 92 & 23rdle p. 89]

- A viscus does not have any other sensation (e.g. touch, temperature etc) except pain.
- Due to sparse distribution of pain receptors, visceral pain is poorly localized.
- Visceral pain sensation is carried by type - C afferents in the sympathetic system (from thoracic and abdominal viscera) and parasympathetic system (from pelvic viscera).

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155. 'C' fibers carry sensations through which pathway?

a) Posterior column

b) Anterior spinothalamic tract

c) Lateral spinothalamic tract

d) All of the above

Correct Answer - C
Ans. C. Lateral spinothalamic tract.
[Ref Ganong 23rdie p.648; Goyton 12th le p.573].
C fibers carry Pain (slow pain) and temperature sensation.
These are carried by lateral spinothalamic tract.

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156. Types C nerve fibers are?

a) Sensory

b) Motor

c) Mixed

d) Any of the above

Correct Answer - A
Ans. A. sensory.
Type C fibers:

- Postganglionic autonomic fibers.
- Sensory function afferent to temperature & pressure.
- No motor function.

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157. Warmth sensation is carried by?

a) A a fibers

b) A (3 fibers

c) A y fibers

d) A S fibers

Correct Answer - A
Ans. a. A a fibers
[Ref Ganong 25"Ye p. 94 & 24"le p. 92; Principles of physiology p. 512]
Temperature (warmth/cold) sensation is carried by Aδ & C fibers.

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158. True about myosin?

a) Thin filament

b) Covers active site of action

c) Has ATPase activity

d) Ca' binding protein

Correct Answer - C

Ans. C. Has ATPase activity

[Ref Ganong 241th le p.100, 102]

- The shortening of muscle fiber occurs due to sliding of actin filaments on myosin filament.
- However, there are four muscle proteins involved in the process: - Actin, Myosin, Tropomyosin, and troponin.

Myosin:

- Myosin is the protein that constitutes the thick filaments. Myosin of skeletal muscle is myosin-II.
- Myosin participates in the contractile mechanism and also acts as an ATPase.

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159. In cardiac muscles, T-tubules are present at?

a) Z lines

b) A lines

c) I lines

d) A-I junction

Correct Answer - A

Ans. A. “Z” lines.

[Ref Principles of medical physiology p.794]

- The cardiac muscle cell contains actin, myosin the sarcotubular system and other organelles seen in skeletal muscles.
- However, the T system of cardiac muscle is located at Z lines rather than at A-I junction, where it is located in skeletal muscles.

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160. In a muscle fiber at rest, the length of the I band is 1 mm and A band is 1.5 mm. What is the length of the sarcomere

a) 0·5 mm

b) 2.5 mm

c) 3.5 mm

d) 5 mm

Correct Answer - B

Ans. B. 2.5 mm.

- Sarcomere is the portion of myofibril between two Z lines.
- Thus, length of sarcomere in given question = 0.5 mm (1/2 I band) + 1.5 mm (A band) + 0.5 mm (1/2 I band) = 2.5 mm.

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161. White fibers are present in which muscle?

a) Calf muscles

b) Back muscles

c) Gluteal muscles

d) Hand muscles

Correct Answer - D

Ans. D. Hand muscles.

[Ref Principles of medical physiology p.118]

Type of muscle fibers:

- Type 1 (red) or type 2 (white).
- Most of the muscle in human body contains both types of fibers, i.e. most muscles in the body have both types of motor units.
- But, some muscles have more type 1 fibers (type 1 motor units) than type 2, and vice-versa.

Accordingly, skeletal muscles can be divided into :

Red muscles

- These muscles contain more type 1 (red) fibers, therefore are slow twitch muscles and contain more myoglobin content.
- These are muscles which require prolonged contraction, for example, muscles which help in maintaining posture, i.e. Back muscles gluteus muscles (at back of hip) and calf muscles.

White (pale) muscles

- These muscles contain more type 2 (white) fibers and are fast twitch muscles.
- These are muscles which help rapid contractions and finer movements.
- Examples are Hand muscles and extra ocular muscles.

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162. Function of muscle spindle is?

a) Movement of a limb

b) Muscle tone maintenance

c) Goal oriented muscle contraction

d) All of the above

Correct Answer - B

Ans. B. Muscle tone maintenance

[Ref Understanding of medical physiology p.138]

- If a skeletal muscle is stretched, it respond by contracting.
- In other words, if a muscle is stretched, it tends to become shorter and more stiff, thereby resisting stretch.
- This is because of receptor sensitive to stretch within the muscle.
- Stretch receptor within a muscle is called "muscle spindles".

Stretch reflex has two principal functions:

1) To maintain muscle tone

- Tone is a tendency of a muscle to resist being stretched.
- Muscle tone is not only important for maintaining posture but also facilitates locomotion and makes all voluntary movement smooth.

2) To make muscles respond to stretch and release.

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163. Afferents for stretch reflexes are carried by which fibers?

a) Aa

b) Ay

c) Type B

d) Type C

Correct Answer - A
Ans. A. Aa
[Ref Ganong 24th/e p. 229]
Sensory innervation (afferent) of muscle spindle:

- Two types of sensory nerve fibers (afferent) originate from the intrafusal fibers :
- Annulospiral (Primary) ending are wound around the central region of both nuclear bag fiber and nuclear chain fiber.
- These are Aα (or Iα) fibers.
- Flower-spray (Secondary) endings innervate the peripheral parts (ends) of nuclear chain fiber.
- These are Aβ or (or II) fibers.

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164. Spinal cord has how many synapses in golgi tendon reflex?

a) 1

b) 2

c) 3

d) 4

Correct Answer - B
Ans. B. 2
[Ref: Principles of medical physiology p. 786]

- Strech reflex through muscle spindle → Monosynaptic
- Golgi tendon reflex → Bisynaptic.

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165. Inverse stretch reflex is a?

a) Monosynaptic reflex

b) Bisynaptic reflex

c) Polysynaptic reflex

d) Nonsynaptic reflex

Correct Answer - B
Ans. B. Bisynaptic reflex
[Ref Principles of medical physiology 3rd/e p.786]
Golgi tendon reflex (inverse stretch reflex) is bisynaptic reflex.

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166. Facilitatory presynaptic neurotransmitter is?

a) GABA

b) Glycine

c) Glutamate

d) Aspartate

Correct Answer - C:D
Ans. is 'c > d' i.e., Glutamate > Aspartate
[Ref Understanding of medical physiology 1"/e p.412]

- Glutamate is the chief excitatory neurotransmitter in the brain and spinal cord.
- Aspartate seems to be the chief excitatory neurotransmitter of cortical pyramidal cells.

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Nissl's granules are found in which part of nerve cell -

a) Axon hillock

b) Axons

c) Node of Ranvier

d) Body

Correct Answer - D

Ans. D. Body

[Ref Chaudhri 7h/e Principles of medical physiology-7]

Nissl Bodies (Nissl granule or tigroid body):

- Nissl bodies are large granular body found in neuron.
- Present all over the soma (body), excepting axon hillock and they extend to some extent in the dendrites, but not within the axon.
- These granules are rough endoplasmic reticulum with free ribosomes and are the site of protein synthesis.
- They are thought to be involved in the synthesis of neurotransmitter such as acetylcholine.
- Nissl bodies are basophilic granules.
- Chromatolysis (disappearance of Nissl bodies) is an important histological sign of neuronal injury.
- When the demand of the protein synthesis is great the nissl granules overwork and many altogether disappear (chromatolysis).

168. Stereocilia are found in?

a) Eye

b) Nose

c) Tongue

d) Epididymis

Correct Answer - D
Ans.D. Epididymis
* Stereocilia are found in three places
- Hair cells of inner ear
- Epididymis
- Ductus deferens.

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169. Stereocilia are present in?

a) Taste buds

b) Hair cells

c) Retina

d) Nose

Correct Answer - B
Ans. B. Hair cells.
[Ref Ganong 25th/e p.202]

- Hair cells have a common structure.
- The tallest hair cell is called as Kinocilium and the progressively shorter hair cells are called as Stereocilia.
- These hair cells are connected together by tip links which has mechanically sensitive cation channels.

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170. CSF pressure is increased in all except -

a) Forced inspiration

b) Coughing

c) Valsalva manoeuvre

d) Crying

Correct Answer - A

Ans. A. Forced inspiration.

[Ref Essential of medical physiology p. 950]

- Events like coughing, valsalva manoeuvre, and crying increase the pressure by decreasing absorption.
- Compression of IJV (internal jugular vein) also raises the CSF pressure.

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171. CSF is present in which space?

a) Central canal of spinal cord

b) Ventricles of brain

c) Subarachnoid space

d) All of the above

Correct Answer - D
Ans. D. All of the above.
[Ref Ganong 24th/e p.603; Principles of medical physiology p. 293]
* Cerebrospinal fluid (CSF) is a clear, colorless, almost protein free filtrate (transduate) of blood.
* It is present,
  - Around the brain (in subarachnoid space) and inside the brain (in its ventricles).
  - Around the spinal cord (in subarachnoid space) and inside the spinal cord (in its central canal).

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172. Function of Ghrelin?

a) Stimulate water absorption

b) Increase appatite

c) Regulation of temperature

d) Stimulate lipogenesis

Correct Answer - B
Ans. B. Increase appatite
[Ref Clinical endocrinology p.48; Ganong 24th/e p.487]
* Ghrelin is a peptide secreted by oxyntic cells in gastric fundus that are characterized by round, compact, electron-dense secretory granules.
* Ghrelin promotes food intake, i.e., stimulate appetite (orexigenic).
* Increases with anorexia.
* In human, ghrelin induces lipolysis.
* Ghrelin is released from the stomach in fasting state.
  - Increases hunger by inhibiting the ventromedial hypothalamus (satiety center).
  - Stimulates GH secretions.

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173. Location of visual cortex?

a) Precentral gyrus

b) Postcentral gyrus

c) Sylvian fissure

d) Calcarine sulcus

Correct Answer - D

Ans. D. Calcarine sulcus

[Ref Principles of medical physiology p.531]

- The occipital lobe is the visual processing center of brain containing most of the anatomical region of visual cortex.
- Primary visual area is brodmann area 17 (also called VI) on medial side of occipital lobe in calcarine sulcus.
- It is also called as striate area or striate cortex because it can be identified by a large stripe of myelin, the stria of gennari.

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174. Parvocellular pathway for vision is concerned with?

a) Fine details of object

b) Movements of object

c) Flickering features

d) Depth of vision

Correct Answer - A
Ans. A. Fine details of object
[Ref Ganong 24th/e p.190]

- Parvocellular pathway (arises from layer 3, 4, 5, 6 of LGB).
- Axons from parvocellular terminate in layer 4 of the visual cortex.
- Parvocellular pathway carries signals for color vision, texture, shape and finer details.

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175. Sweat glands are supplied by all except?

a) Cholinergic neurons

b) Sympathetic neurons

c) Adrenergic neurons

d) C-fibers

Correct Answer - C

Ans. C. Adrenergic neurons

[Ref Understanding of medical physiology p. 786]

- Nerve supply of sweat gland is unique in that it is sympathetic but cholinergic (most other sympathetic sites are noradrenergic).
- Post-ganglionic sympathetic fibers are Type-C fibers.

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176. Gustatory pathway involves which nerve?

a) Facial

b) Glossopharyngeal

c) Vagus

d) All of the above

Correct Answer - D

Ans. D. All of the above

[Ref Principles of medical physiology p.87]

- Fibers innervating taste buds are branches of cranial nerves, i.e., branches of facial, glassopharyngeal, and vagus nerves.
- The taste buds in the anterior two-thirds of the tongue are innervated by lingual branches of the facial nerve.
- The taste buds in the posterior third of the tongue are innervated by glossopharyngeal nerve.
- Taste receptors in the pharyngeal part of tongue and on the hard palate, soft palate, and epiglottis are innervated by fibers of the vagus nerve.

177. Function of cerebellum?

a) Regulation of tone

b) Coordination of eye movement

c) Planning & initiation of movement

d) All of the above

Correct Answer - D

Ans. D. All of the above

Functions of the cerebellum:

- Regulation of tone, posture and equilibrium.
- Smoothening and coordination of voluntary movements. The most important function and the best known function of cerebellum is coordination of movements.
- Coordination of eye movements
- Planning and initiation of movements
- Learning of frequently performed voluntary movements.

Timing and comparison:

- The cerebellum is believed to be a timing device that times the duration of agonistic muscle activity and latency of antagonistic activity, So that any movement is halted at the correct point.

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178. Which of the following is not a metabotropic receptor for serotonin?

a) 5HT,A

b) 5HT,13

c) $5HT_2A$

d) 5HT3

Correct Answer - D

Ans. D. 5HT3

[Ref: Ganong32 p. 139; Principles of medical physiology p.786]

Metabotropic receptors:

- Are G-protein coupled receptors which act through second messenger.

Serotonin included:

- With the exception of the 5-HT3 receptor, a ligand gated ion channel, all other 5-HT receptors.

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179. Two point discrimination is mainly a function of which touch receptors?

a) Merkel's disc

b) Ruffini's end organ

c) Paccinian corpuscle

d) Meissner's corpuscle

Correct Answer - A
Ans. A. Merkel's disc
[Ref Principles of medical physiology p. 647] Tactile (touch) receptors
F**or touch (superfical touch):-**

- Meissner's corpuscle (detect texture of surface, i.e. rough or smooth), Merkel's disc (detect two point discrimination).

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180. Which of the following defines vital capacity?

a) Air in lung after normal expiration

b) Maximum air that can be expirated after normal inspiration

c) Maximum air that can be expirated after maximum inspiration

d) Maximum air in lung after end of maximal inspiration

Correct Answer - C

Ans. C. Maximum air that can be expirated after maximum inspiration

Vital capacity (VC):

- 4700 ml.
- Amount of air that can be exhaled with maximum effort after maximum inspiration (ERV+TV+IRV).
- Used to assess strength of thoracic muscles as well as pulmonary function.

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181. Functional residual capacity in normal adult is?

a) 500 ml

b) 1200 ml

c) 2400 ml

d) 3200 ml

Correct Answer - C
Ans. C. 2400 ml
[Ref: Ganong 24th/e p.629-631]

- Volume of air in the lungs at the end of a normal expiration.
- In other words, FRC = ERV + RV.
- About 2400 ml.

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182. What is maximum voluntary ventilation?

a) Amount of air expired in one munute at rest

b) Maximum amount of air that can be inspired and expired in one minute

c) Maximum amount of air that can be inspired per breath

d) Maximum amount of air remaining in lung after forced expiration

Correct Answer - B

Ans. B. Maximum amount of air that can be inspired and expired in one minute

[Ref Guyton 12th/e p. 472, 473; Ganong 24th/e p. 633]

Maximum voluntary ventilation (MVV):

- It is the maximum amount of air that can be moved into and out of the lungs in 1 minute by voluntary effort.
- About 125-170 L/min.

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183. True about Carboxyhemoglobin?

a) Take up 0_2 very quickly

b) Causes histotoxic hypoxia

c) Causes left shift of Hb-0_2 dissociation curve

d) All are true

Correct Answer - C

Ans. C. Causes left shift of Hb-0_2 dissociation curve

[Ref Understanding of medical physiology p.173].

- COHb cannot take up 02; liberates CO very slowly and shifts dissociation curve of remaining HbO, to left, decreasing the amount of 02 released.
- CO poisoning causes anemic hypoxia because the amount of Hb that can carry O2, is reduced but the total Hb amount of blood is unaffected by CO.

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184. What is the difference between Hb-0 dissociation curve and Hb-CO curve?

a) CO shifts the curve to left

b) CO has more affinity to Hb

c) Co-Hb curve is similar to 0_2-Hb curve

d) All are true

Correct Answer - D

Ans. D. All are true

[Ref Understandings of medical physiology p. 786]

- COHb cannot take up 02; liberates CO very slowly and shifts dissociation curve of remaining Hb02 to left, decreasing the amount of O2, released.
- The affinity of Hb for CO is 200-250 times its affinity for 02.
- So CO-Hb dissociation curve is almost identical to 02 Hb dissociation curve except that partial pressure are at a level of 1/250.

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185. Not true about Bohr effect?

a) Decrease affinity of 0_2 by increase PCO,

b) Left shift of Hb-0_2 dissociation curve

c) It is due to H*

d) All are true

Correct Answer - B

Ans. B. Left shift of Hb-0_2 dissociation curve

[Ref Ganong 24th/e p.644, Understanding of medical physiology p.789]

Bohr effect:

- Increase in PCO2 decreases the 02 affinity to hemoglobin and shifts the oxygen dissociation curve to right; it is called Bohr effect.
- The effect of raised PCO2 is mediated by increase in hydrogen ion concentration.
- Hydrogen ions shift the curve by binding with hemoglobin.
- Deoxygenated hemoglobin (Deoxyhemoglobin) binds II' more actively than does oxygentated hemoglobin (oxyhemoglobin).
- Ions bind to deoxyhemoglobin and reduce the accessibility of oxygen to haem groups.
- That is why in the presence of more hydrogen ions, less oxygen can combines with hemoglobin at a given P02 and the oxygen dissociation curve shifts rightward.

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186. Which of the following explains uptake of 0, in fetal circulation ?

a) Bohr's effect

b) Halden's effect

c) Higher affinity of HbF for 0,

d) None of the above

Correct Answer - C
Ans. C. Higher affinity of HbF for 0,
[Ref Smith's anaesthesia 3rdle p. 77]

- Fetal hemoglobin's greater affinity for oxygen improves oxygen uptake at the placenta.
- A greater affinity for oxygen is an advantage for uptake at the placenta.

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187. Which of the following explains delivery of 0_2 in fetal circulation?

a) Bohr's effect

b) Halden's effect

c) Higher affinity of HbF for 02

d) None of the above

Correct Answer - A
Ans. A. Bohr's effect
Uptake of 0, at placenta → Due to high affinity of HbF for 02
Delivery of 02 at tissue level → Due to Bohr effect.

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188. True of 02-Hb dissociation curve?

a) Straight line curve

b) 100% saturated at $P0_2$ of 100 mmHg

c) Cooperative binding

d) Hb molecule can carry 6 molecules of 0,

Correct Answer - C

Ans. C. Cooperative binding

Molecular basis:

- "Due to phenomenon "Cooperative binding of Oxygen to hemoglobin".

Steps involved:

- Hemoglobin, a tetramer
- Four O2 molecules binds 1 Hb molecule.
- 1st O2 molecule bonds with greatest difficulty.
- Increases affinity to next O2 molecule.

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189. Which increases affinity of hemoglobin for 0,-

a) Acidosis

b) Hyperthermia

c) High pH

d) High PCO2

Correct Answer - C

Ans. C. High pH

Conditions associated with increased affinity of hemoglobin for oxygen:

- High pH.
- Decreased H+ ion concentration (alkalosis).
- Reduced PCO2
- Reduced body temperature.
- Reduced 2,3-bisphosphoglycerate (2,3 -BPG)/2,3-diphosphoglycerate (DPG)
- Fetal hemoglobin.
- CO poisoning.

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190. In comparison to hemoglobin, effect of myoglobin on Bohr effect?

a) Increased

b) Decreased

c) Same

d) No Bohr effect

Correct Answer - D
Ans. D. No Bohr effect
[Ref Principles of medical physiology p. 711]
Myoglobin:

- Single polypeptide chain.
- Human myoglobin contains 152 amino acids with a molecular weight of 17,500.
- Heme is attached to 92"d histidin residue.
- One molecule of myoglobin can combine with one molecule of oxygen.
- Myoglobin has higher affinity to oxygen than that of Hb.
- Myoglobin has high oxygen affinity while Bohr effect, cooperative effect and 2, 3-diphosphoglycerate effect can absent.

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191. Function of chloride shift in RBCs?

a) Right shift of Hb-O, curve

b) Left shift of Hb-0_2 curve

c) Transport of CO2

d) Diffusion of 0_2 in alveoli

Correct Answer - C

Ans. C. Transport of CO2

[Ref Ganong 24th/e p.644; Principles of medical physiology p. 819]

Transport of CO2:

* Carbon dioxide is transported in blood as plasma bicarbonate.
* Red blood cells (RBCs) play a major role in the mechanism because RBCs contain the enzyme carbonic anhydrase that catalyzes the reaction CO2 + H20 = HCO3 + H.
* Hence when CO2 diffuses into the RBC, it reacts chemically with water to generate HCO3.
* The H+ ions are mopped up by hemoglobin, which is an excellent buffer.
* This enables the reaction to proceed in the forward direction.
* The HCO3- ions generated diffuse out into the plasma in exchange for Cl ions that diffuse into RBCs simultaneously.
* The movement of chloride ions into RBC is called Chloride shift.
  - The above events results in an increase in total number ions inside the RBC, which increases its osmolarity.
  - As a result, water enters the RBC through osmosis.

192. Closing volume is related to which of the following?

a) Tidal volume

b) Residual volume

c) Vital capacity

d) None

Correct Answer - B

Ans. B. Residual volume

[Ref Principles of medical physiology p. 240, 241]

- The closing volume is the point at which dynamic compression of the airways begins, especially during forced expiration.
- Lower (dependent) parts of the lungs has lesser transmural pressure, therefore they begin to close early.
- Therefore, closing volume is the lung volume above residual volume at which airway in the lower, dependent parts of the lungs begin to close off.
- Closing capacity is the lung volume (including residual volume) at which airways in the lower, dependent parts of the lungs begin to close off, i.e., Closing capacity = closing volume + residual volume.
- Closing capacity and volume are tested for small airway function.
- Critical closing volume is the minimum volume and pressure of gas necessary to prevent small airway collapse. It is somewhat near residual volume.

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193. Central chemoreceptors are not stimulated by?

a) T PCO_2

b) T El' in CSF

c) Hypoxia

d) All stimulate

Correct Answer - C
Ans. C. Hypoxia
[Ref Ganong 25th/e p. 658]
Central chemoreceptors:

- Located in a chemosensitive area on the ventral surface of the medulla near the exit of the ninth and tenth cranial nerves.
- The primary stimulus for the central chemoreceptors is an increase in the hydrogen ion concentration.
- Stimulation of central chemoreceptors by increased hydrogen ion concentration leads to excitation of the respiratory neurons, thereby producing an increase in the rate and depth of respiration.
- Central chemoreceptors are directly stimulated by an increase in H* concentration in CSF and brain inerstitial tissue, which is brought about by change in arterial PCO2 (PaCO2).
- Not stimulated by hypoxia; rather like any other cells, they are depressed by hypoxia.

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194. Chemical regulation of respiration is not affected by?

a) $P0_2$

b) PCO2

c) pH

d) Mean BP

Correct Answer - D
Ans. D. Mean BP
[Ref Principles of medical physiology; Ganong 24th/e p.662-663]
Chemical Regulation
Central chemoreceptors: TFP Concentration in CSF (1, pH of CSF); T PCO, of blood.
Peripheral chemoreceptors: LP02, TPACO2, acidosis (4 pH)

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195. True about high altitude acclimatization?

a) Left shift 010_2- Hb curve

b) Decreased RBC count

c) Hypoventilation

d) Increased erythropoietin

Correct Answer - D

Ans. D. Increased erythropoietin

[Ref Ganong 24th/e p. 650, 651 & 23'/e p. 617-619; Guyton 12i p. 529, 530]

Acclimatization:

Imporal compensatory mechanisms at high altitude are :-

- Hyperventilation:- Causes CO2 washout, .1., PCO2 and respiratory alkalosis.
- Increased 2, 3 DPG:- Rightward shift of 02-Hb dissociation curve.
- Polycythemia and increased Hb:- Due to increased erythropoietin release which causes absolute polycythemia with increased red cell mass.
- Others:- Increased renal excretion of alkali (HCO3-), increased tissue vascularity, increased oxidative metabolism, Increased diffusion capacity of lung, increased myoglobin.

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196. Respiratory exchange of gases is strated from?

a) Branchi

b) Alveoli

c) Bronchiole

d) Tissue level

Correct Answer - B
Ans. B. Alveoli
[Ref Ganong 25th/e p.639-640]
External respiration:

- It consists of exchange of gases (02 and CO2) in the alveoli.
- There is diffusion of 02 from alveolar air into pulmonary capillary blood and diffusion of CO2 into opposite direction.

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197. Distending capacity of lung is maximum at?

a) Apex

b) Base

c) Mid region

d) Posterior lobe

Correct Answer - A
Ans. A. Apex
[Ref Understandings of medical physiology p.791]

- "The air spaces at the apices of the lungs tend to be relatively distended, due to weight of the lungs effectively dragging itself downwards, putting traction on the upper part of the lung and stretching the apical air spaces open."

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198. Action potential in cardiac muscles is due to which ions?

a) K*

b) Na*

c) Ca'

d) CI?

Correct Answer - A:B:C

Ans. b > a & c

- Na+, K+ and Ca+, all are involved in full cycle of action potential in cardiac muscle.
- But, the main phase (phase 0 or depolarization) is due to Na+ ions.
- Phase 0 (phase of rapid depolarization) → opening of fast sodium channels with Na* influx.
- Phase 1 (initial phase of rapid repolarization) -4 closure of fast sodium channels.
- Phase 2 (plateu phase) → opening of voltage gated slow Ca** channels with calcium influx.
- Phase 3 (final repolarization) → opening of K* channels with efflux.
- Phase 4 -4 Resting membrane potential.

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199. Heart sound occuring just before closure of AV?

a) S1

b) S2

c) S3

d) S4

Correct Answer - D
Ans. D. S4
[Ref CECIL p.212]

- S4 occurs just before 1st heart sound (1st heart sound is due to closure of AV valve, i.e. mitral & tricuspid valve).

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200. Baroreceptors are related to which vessels?

a) Internal carotid artery

b) External carotid artery

c) Subclavian artery

d) Brachiocephalic trunk

Correct Answer - A

Ans. A. Internal carotid artery

[Ref Ganong 24thle p.590, 591; Principles of medical physiology p.791]

- Baroreceptors are mechanoreceptors that are located in the adventia of carotid artery and aorta, at specialized locations called sinuses.

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201. Effect of positive G?

a) Increased cerebral arterial pressure

b) Increased venous return

c) Decreased cardiac output

d) Increased pressure in lower limb

Correct Answer - C

Ans. C. Decreased cardiac output

[Ref Ganong 25thie p.576, 24th le p.607-608, Principles of medical physiology p.632]

Effects of positive G:

- Throwing of blood in the lower part
- Increased lower limb venous pressure
- Decreased cerebral arterial pressure
- Decreased, venous return
- Decreased, cardiac output
- Gray-out and Black-out.

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202. Which of the following cause increase in pulmonary arterial pressure?

a) Histamine

b) Hypoxia

c) ANP

d) PGI2

Correct Answer - B

Ans. B. Hypoxia

[Ref Ganong 24th/e p.637]

- Hypoxia causes vasoconstriction in pulmonary blood vessels causing increase in pulmonary arterial pressure.

Effect of various stimulations on pulmonary vessels:

Vasoconstriction:

- alpha-adrenergic
- Thromboxane-A2
- Angiotensin II
- LTC4, LTD4
- Endothelins
- Hypoxia
- Hypercapnia

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203. Most important cerebral vasodilator?

a) H^+

b) Na^+

c) Cal^+

d) None

Correct Answer - A

Ans. A. H^+

[Ref R.K. Marya 3rdie p. 156]

The main metabolic factor responsible for the vasodilatation associated with cerebral activity is the CO2 produced by the activated neurons.

Increase in blood PCO2 also produces cerebral vasodilatation.

The vasodilatory effect of CO2 is indirect and is mediated by formation of local H^+ which has a direct vasodilatory effect on cerebral blood vessels.

A fall in blood PO ,produces cerebral vasodilatation and an increase in blood PO ,produces cerebral vasoconstriction.

204. Renin secretion is decreased by?

a) Sympathetic stimulation

b) Prostacycline [PGI2]

c) Nacl in distal tubules

d) Hypotension

Correct Answer - C

Ans. C. Nacl in distal tubules

[Ref Ganong 241th le p.674, 670]

Principal regulators of renin secretion:

- The juxtaglomerular cells themselves are the sensors of the afferent arteriolar pressure. Lowered pressure stimulate renin release
- Increased NaC1 in distal tubules is sensed by macula densa and the signal is transmitted to JG cells.
- This results in decreased Renin release.
- Opposite occurs when decreased NaC1 is delivered in distal tubule, i.e., increased renin release.
- Adenosine is probably the mediator of signal.
- The JG cells are innervated by sympathetic fibers. They release renin in response to sympathetic discharge, and by circulating catecholamines.
- Prostacycline (PGI2) stimulates renin secretion through a direct action.

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205. True about function of distal convoluted tubule?

a) Reabsorbe Na* by Nal(+2c1- channel

b) Reabsorbe IC' by Nei(' channel

c) Water reabsorption by ADH

d) All are correct

Correct Answer - C

Ans. C. Water reabsorption by ADH

Over-all impact of reabsorption in early distal tubule is to dilute urine by removing solutes.

Late segment of distal tubule is functionally similar to cortical collecting duct.

Principal (P) cells reabsorb sodium & water from lumen (By ADH & secrete potassium into lumen.

Intercalated (I) cells reabsorb potassium & secrete hydrogen into lumen.

Cl- is reabsorbed into late distal tubule.

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206. Function of Lacis cells in nephron?

a) H^+secretion

b) Na^+reabsorption

c) Renin secretion

d) Regulation of vasoconstriction / vasodilatation of arterioles

Correct Answer - D

Ans. D. Regulation of vasoconstriction / vasodilatation of arterioles

[Ref Principles of medical physiology p.412]

- Juxtaglomerular/Extraglomerular mesangial cells (Lacis cells) forming connection via actin and microtubules which allow for selective vasoconstriction/vasodilation of the renal afferent and efferent arterioles with mesangial cell contraction.
- Note: Lacis cells also contain some renin.
- But Renin is mainly secreted by juxtaglomerular cells.

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207. Plasma inulin of a person is 4 mg/ml and urine flow rate is 20 ml/min. What will be GFR if urine inulin is 50 mg/ml?

a) 125 ml/min

b) 250 ml/min

c) 500 ml/min

d) 1000 ml/min

Correct Answer - B
Ans. B. 250 ml/min
[Ref Ganong 23rd le p.678, 679]
GFR – Urine inulin x Urine flow
GFR =– 250 ml/min.

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208. True about aquaporins are all except ?

a) Protein

b) Aquaporin-1 in PCT

c) Aquaporin-2 in loop of Henle

d) Aquaporin-2 in CD

Correct Answer - C

Ans. C. Aquaporin-2 in loop of Henle

[Ref Ganong 24thie p.683-690]

- Aquaporins are protein channels which help in rapid diffusion of water
- Proximal tubles and thin descending limb of loop of Henle → aquaporin - 1, which is independent of ADH.
- Late distal tubule and collecting duct → aquaporin - 2, dependent on ADH.

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209. Maximum fat absorption in GI tract occurs in?

a) Duodenum

b) Jejunum

c) Ileum

d) Calcium

Correct Answer - B

Ans. B. Jejunum

After fat digestion, fatty acids and monoglycerides are absorbed in small intestine especially in the jejunum and some amount also in ileum.

In side the enterocyte, fatty acids and monoglycerides again form triglycerides.

These triglycerides are incorporated into chylomicrons and transported to lymphatics and from there to blood vessels.

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210. If the ileum is excised, what will increase in stool?

a) Bile salts

b) Bile acids

c) Iron

d) Calcium

Correct Answer - A
Ans. A. Bile salts
Bile (Major constituent bile salts) is absorbed in terminal ileum.
Iron and calcium are absorbed in duodenum.

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211. Which of the following acts as "Gatekeeper" in the GIT?

a) Na^+-amino acid cotransporter

b) Na^+ K^+ ATPass

c) Calcium channel

d) Ne-glucose cotransporter

Correct Answer - C

Ans. C. Calcium channel

[Ref www.ncbi.nlm.nih.gov]

- Epithelial calcium channels (E CaCs) act as 'gatekeeper' for transepithelial Ca'' transport.
- Prime target for hormonal control of active Ca(2+) flux from the urine space or intestinal lumen to the blood compartment.
- This review covers the distinctive properties of these highly Ca(2+)-selective channels and highlights the implications for our understanding of the process of transepithelial Ca(2+) transport.

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212. True about basic rhythm of GIT?

a) Fluctuate between -65 and -40 mV

b) Initiated by zymogen cells

c) Pacemaker cells are present in proximal stomach

d) All of the above

Correct Answer - A

Ans. A. Fluctuate between -65 and -40 mV

[Ref Principles of medical physiology p.915]

- The smooth muscle cells of gastrointestinal tract has spontaneous rhythmic fluctuations in membrane potential between about -65 and -45 mV.
- This is called basic electrical rhythm (BER).
- This BER is initiated by pacemaker cells called intersititial cells of Cajal.

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213. Daily fecal urobilinogen excretion in healthy adults?

a) 20-40 gm

b) 40-280 gm

c) 20-40 mg

d) 40-280 mg

Correct Answer - D
Ans. D. 40-280 mg
[Ref: Principles of medical physiology p.212]
The normal daily excretion of urobilinogen in the feces ranges from 40 to 280 mg, averaging 150 mg.
A total daily excretion of 140 mg of urobilinogen would represent the catabolism of 3.99 grams of hemoglobin.

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214. Maximum daily degradation of hemoglobin in normal adults?

a) 2 gm

b) 4 gm

c) 6 gm

d) 8 gm

Correct Answer - D
Ans. D. 8 gm
A total daily excretion of 140 mg of urobilinogen would represent the catabolism of 3.99 grams of hemoglobin.
Normal maximum urobilinogen in feces is 280 mg, i.e. 8 grams of hemoglobin catabolism.

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215. cAMP activates?

a) Protein kinase 'A'

b) Protein kinase 'C'

c) Nuclear transcription

d) Phospholipare

Correct Answer - A

Ans. A. Protein kinase 'A'

Hormones acting through adenylyl cyclase (AC):

- Corticotropin releasing hormone (CRH), FSH, LH, TSH, ACTH (corticotropin), ADH, Vasopressin (V2 receptors), Parathormone, Catecholamine) e.g., adrenaline (most actions), Glucagon, hCG, Calcitonin, Somatostatin, acetylcholine (M2), Dopamine (1), Angiotensin II (epithelial cells), GABA-B, Histamine (H2).

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216. Mechanism of action of 5-a reductase?

a) Breakage of C_4C_5 double bond

b) Breakage of C-N bond

c) Breakage of amide bond

d) Breakage of N-N bond

Correct Answer - A

Ans. A. Breakage of C_4C_5 double bond

5-alpha reductase causes reduction (breakge) of C4-05 double bond (A4.5) with the help of NADH as a cofactor.

It converts (reduces) testosterone to dihdrotestosterone.

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217. Glucose transporter affected in diabetes mellitus?

a) GLUT-2

b) GLUT-5

c) GLUT-4

d) SGLT-2

Correct Answer - C

Ans. C. GLUT-4

[Ref Principles of medical physiology p.790]

- GLUT-4 is responsible for facilitating the transport of glucose into the cells in response to insulin.
- For this reason, mutation in GLUT-4 have been associated with type 2 diabetes.
- The GLUT-4 gene is located on short arm of chromosome 17 (17p13).

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218. Gene for insulin responsive glucose transporter is located on chromosome?

a) 7

b) 21

c) 17

d) 13

Correct Answer - C

Ans. C. 17

[Ref Principles of medical physiology p.790]

- GLUT-4 is responsible for facilitating the transport of glucose into the cells in response to insulin.
- For this reason, mutation in GLUT-4 have been associated with type 2 diabetes.
- The GLUT-4 gene is located on short arm of chromosome 17 (17p13).

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219. True about ACTH and cortisol [corticosteroid] secretion?

a) Maximum secretion in the evening

b) ACTH has negative feed-back control

c) ACTH has major effect on mineralocorticoid secretion

d) ACTH is derived from POMC

Correct Answer - B:D

Ans. B & D. ACTH has negative feed-back control (D) ACTH is derived from POMC

[Ref Understandings of medical physiology p.539]

- ACTH is derived from precursor molecule pro-opiomelanocortin (POMC).
- ACTH stimulates the adrenal cortex to increase the synthesis and release of glucocorticoids. At normal physiological concentration, the effect of ACTH on secretion of mineralocorticoid (aldosterone) and androgen is minimal. However, at higher concentration synthesis and release of these hormone can also increase.
- The secretion of ACTH is subjected to negative feedback (inhibition) by glucocorticoids.
- ACTH secretion shows diurnal (circadian) rhythm with minimum secretion at evening and maximum secretion at early morning.

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220. Secretion of cortisol is highest at?

a) Mid-night

b) Early morning

c) Afternoon

d) Evening

Correct Answer - B

Ans. B. Early morning

[Ref Textbook of clinical endocrinology p. 78]

- The secretion of ACTH and consequently that of cortisol follows a circadian rhythm due to hypothalamic (Suprachiasmatic nucleus) control.
- ACTH secretion is minimum during night and maximum early in the morning (6-8 am).

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221. All are true regarding intracellular receptors, except?

a) Act by regulating gene expression

b) Fastest acting receptors

c) Glucocorticoid receptors

d) DNA contains hormone responsive elements

Correct Answer - B
Ans. B. Fastest acting receptors
[Ref Ganong 24th le p.406; Harper 28th/e p.4281]
This is slowest acting tranduction mechanism because protein synthesis takes some time.

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222. Hormone which affects IC* ion concentration?

a) GH

b) Thyroxine

c) Insulin

d) Estrogen

Correct Answer - C

Ans. C. Insulin

[Ref Guyton Ilth/e p.710]

- Insulin lowers serum IC' concentration i.e., causes hypokalemia. The hypokalemic action of insulin is due to stimulation of K+ intake by the cells mainly in muscle and adipose tissue. Insulin increases the activity of Na+ - K. ATPase in cell membrane, so that more K+ is pumped into cells.

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223. Tissue factor activates?

a) Intrinsic pathway

b) Contact pathway

c) In vitro pathway

d) In vivo pathway

Correct Answer - D
Ans. D. In vivo pathway
[Ref Ganong 23thie p.5.31-53.5]
Blood coagulation pathways are divided into:-
Intrinsic pathway (contact pathway):

- It is largely an 'in vitro' pathway and is activated when factor XII (Hageman factor or contact factor) comes in contact with negatively charged surface, e.g. glass, kaolin etc.

Extrinsic pathway:

- It is largely an in vivo pathway is activated by tissue factor (thromboplastin) at the site of tissue injury.

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224. Tisse factor activates?

a) Preaccelerin

b) Hageman facter

c) Labile facter

d) Prothrombin

Correct Answer - A
Ans. A. Preaccelerin
[Ref Ganong 23rd le p.531-535]
Preaccelerin (factor VII) is activated to factor Vila by tissue factor.
Tissue factor is the cofactor for both factor VII and Vila.

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225.

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Maximum storage of magnesium occurs in which part of body?

a) Adipose tissue

b) Skeletal muscles

c) Blood

d) Bone

Correct Answer - D

Ans. D. Bone

[Ref Principles of medical physiology p.114]

- An adult contains approximately 25 grams of magnesium.
- About 60% of the magnesium is present in bone, of which 30% is exchangeable and functions as a reservoir to stabilize the serum concentration.
- About 20% is present is skeletal muscles, 19% in other soft tissues and less than 1% in ECF.

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226.

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Phosphate/phosphorus is present in which part of cell?

a) Cell membrane

b) DNA

c) RNA

d) All of the above

Correct Answer - D
Ans. D. All of the above
[Ref Principles of medical physiology /e p.116]
Phosphorus is a component of DNA, RNA, ATP and also the phospholipids that form all cell membranes.
Nearly every cellular process that uses energy obtains it in the form of ATP.
Thus, it is an essential element for all living cells and important for energy utilization in the body.

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227. Exercise mediated increase in muscular blood flow is mediated by which sympathetic fibers

a) Adrenergic

b) Noradrenergic

c) Dopaminergic

d) Cholinergic

Correct Answer - D

Ans. D. Cholinergic

- An exercise is a form of stress, and like most stresses, is accompanied by sympathetic overactivity.
- Skeletal muscles have both sympathetic noradrenergic vasoconstrictor fibers and sympathetic cholinergic vasodilator fibers.
- Vasoconstrictor nerve fibers act mainly on veins.
- Venoconstriction improves venous return and helps in improving cardiac output.
- On the other hand, sympathetic cholinergic fibers, which are unique to skeletal muscles, bring about arteriolar dilatation and thereby increase muscle blood flow.

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228. Premature ejaculation occurs in which phase of sexual cycle?

a) Excitement phase

b) Plateu phase

c) Orgasmic phase

d) Resolution

Correct Answer - C
Ans. C. Orgasmic phase
[Ref Oxford textbook of psychiatry p.227]
Orgasm phase:

- Premature ejaculation occurs in this phase
- Reflexive muscle contraction occurs in pelvis
- It is the shortest phase and lasts only a few seconds

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229. Erection of penis occurs in which phase of sexual *cycle?*

a) Excitement phase

b) Plateu phase

c) Orgasmic phase

d) Resolution

Correct Answer - A
Ans. A. Excitement phase
Ref Oxford textbook of psychiatry p.227]
Excitement phase

- There is increased physiological excitement such as high BP and heart rate.
- There is erection of penis (in males) and swelling of clitoris & labia minora (in females).
- Testes swell, scrotum tightens
- There is vaginal lubrication

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230. Shortest phase of sexual cycle?

a) Excitement phase

b) Plateu phase

c) Orgasmic phase

d) Resolution

Correct Answer - C
Ans. C. Orgasmic phase
[Ref Oxford textbook of psychiatry p.227]
Orgasm phase:

- Premature ejaculation occurs in this phase
- Reflexive muscle contraction occurs in pelvis
- It is the shortest phase and lasts only a few seconds

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231. Inhibition of Na* ATPase leads to?

a) Decreased Na* in the cell

b) Increased Ca' in the cell

c) Increased K* in the cell

d) Increased Cl- in the cell

Correct Answer - B
Ans. B. Increased Ca' in the cell
[Ref Principles of medical physiology 3rdle p. 786]
3Na+/1Ca+ exchanger (Sodium/Calcium exchange pump):

- It moves 3Na+ into the cell in exchange one Ca+ going out

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232. Hypercoagulable factor is?

a) Protein C

b) Protein S

c) Factor V Leiden

d) Antithrombin III

Correct Answer - C
Ans. C. Factor V Leiden
[Ref Textbook of clinical hematology p. 786]
Factor V Leiden is the most common inherited hypercoagulable state.
Occurs when a specific mutation in a protein that is more resistant to be turned off, leading to an increased risk of thrombosis.

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233. Apnea-hypopnea index is used for?

a) Emphysema

b) Asthma

c) Hyaline membrane disease

d) Obstructive sleep apnea [OSAI

Correct Answer - D

Ans. D. Obstructive sleep apnea [OSAI

[Ref Harvard ed] Apnea Hypopnea Index (AHI)

- The AHI is the number of apneas or hypopneas recorded during the study per hour of sleep.
- It is generally expressed as the number of events per hour.

Based on the AHI, the severity of OSA is classified as follows:

- None/Minimal: AHI < 5 per hour
- Mild : AHI 5, but < 15 per hour
- Moderate : AHI 15, but < 30 per hour
- Severe : AHI 30 per hour.

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234. True about heterophilic receptors?

a) Involved in binding of GH to cell membrane

b) Bind to same ligand/hormone

c) Involved in cell adhesion

d) All are correct

Correct Answer - C

Ans. C. Involved in cell adhesion

[Ref Textbook of clinical pathology p.1132]

Cell-cell and cell-tissue-interactions occur through following types of receptors:

- Homophilic & heterophilic receptors.

Heterophilic receptors:

- These receptors recognize distinct ligands (called adhesion epitopes) of opposing cell membranes or tissue (called "lock and key bonds" or "links").

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235. Third order neurons of sensations from face arise in?

a) Medulla

b) Spinal nucleus of trigeminal

c) Thalamus

d) Brainstem

Correct Answer - C
Ans. C. Thalamus
General sensations from the face are carried by trigeminal nerve. From VPM nucleus of thalamus, third order neurons project to postcentral gyrus (primary sensory cortex).

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236. Somatic efferent of which arise from medulla?

a) Oculomotor

b) Trochlear

c) Abducent

d) Hypoglossal

Correct Answer - D
Ans. D. Hypoglossal
General somatic efferent (motor) nuclei of Hypoglossal nucleus:

- It lies in medulla and through hypoglossal nerve supplies muscles of tongue, except palatoglossus.

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237. Actin is which type of protein?

a) Fibrous

b) Globular

c) Both

d) None

Correct Answer - C

Ans. C. Both

[Ref Principles of medical physiology p.731]

There are two types of actin filaments:

- F-actin → Fibrous protein
- G-actin → Globular protein

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238. NAD^+ Acts as a coenzyme for ?

a) Xanthine oxidase

b) L-amino acid oxidase

c) Succinate dehydrogenase

d) Malate dehydrogenase

Correct Answer - D
Ans. 'D' Malate dehydrogenase
NAD -linked dehydrogenases Pyruvate dehydrogenase, isocitrate dehydrogenase, malate dehydrogenase, a-ketoglutarate dehydrogenase, glutamate dehydrogenase, glyceraldehyde-3-P dehydrogenase, lactate dehydrogenase, 13-hydroxy acyl CoA dehydrogenase, glycerol 3-P dehydrogenase (cytoplasmic).
NADP*-linked dehydrogenases Glucose-6-P dehydrogenase, 6-Phosphogluconate dehydrogenase, 3-ketoacyl reductase, Enoyl reductase, gulonate dehydrogenase.
FAD-linked dehydrogenases Succinate dehydrogenase, fatty acyl CoA dehydrogenase, glycerol-3P dehydrogenase (mitochondrial).

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239. Enzyme involved in the transfer of hydrogen ion is

a) Hydratase

b) Oxidase

c) Peroxidase

d) Dehydrogenase

Correct Answer - B:D

Ans. is 'b' i.e., Oxidase & 'd' i.e., Dehydrogenase [Ref Harper 30th/e p. 198; Vasudevan 5th/e p. 210]

- Enzyme involved in oxidation-reaction are :?
  Cause removal of hydrogen
- Dehydrogenases : Use NAD or FAD as acceptor
- Oxidases : Use oxgen as acceptor, Add oxygen
- Oxygenases

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240. Which of the following is a constitutive enzyme?

a) Hexokinase

b) Glucokinase

c) p galactosidase

d) Cyclooxygenase-2

Correct Answer - A
Ans. is 'a' i.e.,Hexokinase

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241. Sequence of complexes in the electron transport chain is -

a) NADH dehydrogenase → Q → Cytochrome bc1 → Cytochrome aa3 → O,

b) NADH dehydrogenase → Q → Cytochrome aa3 → Cytochrome bcl → O,

c) NADH dehydrogenase → Cytochrome aa3 → Q → Cytochrome bcl → O,

d) NADH dehydrogenase → Cytochrome bcl → Q → Cytochrome aa3 → O,

Correct Answer - A

Ans. is 'a' i.e., NADH dehydrogenase → Q → Cytochrome bcl → Cytochrome aa3 → 02

Electron transport chain is made up of 5 stationary complexes and 2 mobile complexes

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242. Regarding energy production by the electron transport chain, which is true?

a) The complexes are arranged in a decreasing order of redox potential

b) The complexes are arranged in a decreasing order of ability to get reduced

c) The complexes are arranged in a decreasing order of state of oxidation

d) The complexes are arranged in a decreasing order of energy level

Correct Answer - D

Ans. is 'd' i.e., The complexes are arranged in a decreasing order of energy level *[Ref Essential of biochemistry p. 712]*

- ETC help in ATP generation
- It is explained by Mitchell's chemiosmotic theory. According to this theory, the complexes are arranged in an increasing order of redox potential. Redox potential is a measure of ability to get reduced. So the complexes are arranged in an increasing order of ability to get reduced. As more a substance is oxidised higher will be the ability to get reduced, the complexes are arranged in an increasing order of state of oxidation. As state of oxidation is inversely proportional to energy level, the complexes are arranged in a decreasing order of energy level.
- So, when electrons move from one complex to another, it means electrons move from a complex of high energy to a complex of low energy and that liberates energy. This energy is used for pumping hydrogen ions from the mitochondrial matrix to just outside the inner mitochondrial membrane. After hydrogen ions accumulate outside

the inner mitochondrial membrane, hydrogen ions go through FO Component of ATP synthase.

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243. Electron transport chain all are true except

a) Complexes are arranged in an increasing order of redox potential;

b) Mitochondrial Glycerol phosphate dehydrogenase sends its electron directly to Q

c) l0 Hydrogen ions are translocated when NADH enters into an electron transport chain

d) 7 Hydrogen ions are translocated when FADH2 electrons get into electron transport chain.

Correct Answer - D

Ans. is 'd' i.e., 7 Hydrogen ions are translocated when FADH2 electrons get into electron transport chain

- NADH electrons get into electron transport chain through complex I. Energy difference between NADH and Q is in such a way that when electrons move from complex I to Q, 4 hydrogen ions get translocated.
- Similarly 4 ions get translocated when electrons move from Q to complex III and 2 1-1' ions get translocated when electrons move from complex III to IV. So totally 10 1-1^{+} ions get translocated when electrons from NADH get into electron transport chain. Complex V or ATP synthase complex works in such a way that when 10 H* ions go through F_0 component, 1 ATP is generated. So when 10 Hydrogen ions are translocated, 2.5 ATPs can be generated.
- FADH, electrons get into electron transport chain through either complex II or they directly get into Q, in either case, no energy is liberated. No hydrogen ions are translocated. When electrons move

from Q to Complex III, 4 hydrogen ions and when electrons move from III to IV 2 hydrogen ions are translocated. So totally 6 hydrogen ions are translocated when FADH2 gets into electron transport chain. ATP synthase complex generates 1 ATP for every 4 hydrogen ions translocated through F, component. So for 6 hydrogen ions, it is 1.5 ATP

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244. Atractiloside act as ?

a) Uncoupler

b) Inhibitor of oxidative phosphorylation

c) Inhibitor of complex I of ETC

d) Inhibitor of complex III of ETC

Correct Answer - B

Ans. is 'b' i.e., Inhibitor of oxidative phosphorylation

Inhibitors of electron transport chain?

- Inhibitors of respiratory chain may be divided into three groups : ?

1. Inhibitors of electron transport chain proper

- These inhibitors inhibit the flow of electrons through the respiratory chain. This occurs at following sites.
- Complex I (NADH to CoQ) is inhibited by : - Barbiturates (amobarbital), Piericidin A (an antibiotic), rotenone (an insectiside), chlorpromazine (a tranquilizer), and guanethidine (an ntihypertensive). These inhibitors block the transfer of reducing equivalents from FeS protein to CoQ.
- Complex II is inhibited by : - Carboxin and TTFA inhibit transfer of electon from FADH2 to CoQ, whereas malanate competitively inhibit from succinate to complex II. Complex III (Cytochrome b to cytochrome CI) is inhibited by : - Dimercaprol, antimycin A, BAL
- (British antilewisite), Naphthyloquinone. These inhibitors block the transfer of electrons from cytochrome b to cytochrome
- Complex IV (cytochrome C oxidase) is inhibited by : - Carbon monoxide, CN-, H_2S and azide (N3-). These inhibitors block the transfer of electrons from cytochrome aa3 to molecular oxygen and therefore can totally arrest cellular respiration.

2. Inhibitors of oxidative phosphorylation

- These compounds directly inhibit phosphorylation of ADP to ATP. Oligomycin inhibits F_o component of F_0F, ATPase. Atractiloside inhibits translocase, a transport protein that transports ADP into mitochondria for phosphorylation into ATP.

3. Uncouples

- As the name suggests, these componds block the coupeling of oxidation with phosphorylation. These compounds allow the transfer of reducing equivalents in respiratory chain but prevent the phosphorylation of ADP to ATP by uncoupling the linkage between ETC and phosphorylation. Thus the energy instead of being trapped by phosphorylation is dissipated as heat. Uncouplers may be :-

1. Natural :- Thermogenin, thyroxine
2. Synthetic :- 2, 4-dinitrophenol (2, 4-DNP), 2, 4-dinitrocresol (2, 4-DNC), and CCCP (chlorocarbonylcyanidephenyl hydrazone).

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245. Which of the following is the respiratory centre of cell?

a) Mitochondria

b) Microsome

c) Lysosome

d) Nucleus

Correct Answer - A

Ans. is 'a' i.e., Mitochondria

- As mitochondria harbours the electron transport chain. In electron transport chain, the electrons from NADH and FADH2 are transferred through the various complexes to finally Oxygen.
- Oxygen is then converted to water. This way all fuels get oxidised to Carbondioxide. In other words in miotochondria, Oxygen is utilised and Carbon dioxide generation is supported. Hence it is called as the respiratory centre of the cell.

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246. Cellulose is biochemically -

a) β (1,4) L glucose

b) ?, (14) D glucose

c) β(1,4) D glucose

d) ? (1,4) L glucose

Correct Answer - A

Ans. is 'a' i.e., β (1,4) L glucose

- Cellulose is a component of cell wall.
- Cellulose is a structural homopolysaccharide made up of glucose molecules linked by 13(1,4) linkages.
- Humans cannot digest cellulose because human digestive enzymes cannot break 43(1,4) linkages present in oligosaccharides and polysaccharides.
- This is why vegetarian diet is considered to provide fibre to the diet.

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247. D and L isomerism is -

a) Optical isomerism

b) Functional isomerism

c) Epimerism

d) Enantiomerism

Correct Answer - D

Ans. is d.i.e., Enantiomerism

- Enantiomerism is a type of stereoisomerism in which two molecules have the same molecular formula and the same structural formula but they differ in spatial orientation with respect to all the carbon atoms and they are named based on the orientation in the penultimate carbon atom.
- In the penultimate carbon atom, if OH is on the right side, it is D form, if OH is on the left side, it is L form. The other name for enantiomerism is Racemism.

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248. **Which among the following glucose transporter present in beta cells ?**

a) GLUT1

b) GLUT2

c) GLUT3

d) GLUT4

Correct Answer - B

GLUT2 is the glucose transporter present in the betacells and liver cells.It has a high Km for glucose.Hence entry of glucose is directly proportional to the glucose level.It is an insul;in independent transport.

GLUT3 is present in brain and **GLUT4** medites insulin dependent transport of glucose into muscle and adipose tissue.

Ref: Murray R.K., Granner D.K. (2011). Chapter 40. Membranes: Structure & Function. In D.A. Bender, K.M. Botham, P.A. Weil, P.J. Kennelly, R.K. Murray, V.W. Rodwell (Eds), *Harper's Illustrated Biochemistry,* 29e.

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249. All of the following are converted to cr-ketoglutarate on catabolism except-

a) Glutamate

b) Histidine

c) Proline

d) Glycine

Correct Answer - D

Ans. is 'd' i.e., Glycine *[Ref Harper 30th/e* p. *162, 250/e p. 166, 167]*

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250. Glucogenic aminoacids give rise to all of the following intermediates of citric acid cycle except-

a) Isocitrate

b) c ketoglutarate

c) Succinyl CoA

d) Fumarates

Correct Answer - A
Ans. is 'a' i.e., Isocitrate

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251. What is the precursor of proline in Krebs cycle?

a) Oxaloacetate

b) c ketoglutarate

c) Succinyl CoA

d) Fumarates

Correct Answer - B

Ans. is 'b' i.e., c ketoglutarate *[Ref Essentials of Biochemistry p. 232; Harper 29`'/e p.*

- Proline is an alpha aminoacid with a pyrrolidine ring
- It is a non polarimino acid with NH as one of its functional groups
- It disrupts a helix
- It is a nonessential amino acid and is synthesized from a non-essential aminoacid glutamate
- Glutamate in the presence of y glutamate kinase gets converted to glutamate 5 phosphate, which in the presence of y glutamate dehydrogenase gets converted to y glutamate semialdehyde. y glutamate semialdehyde spontaneously cyclises to form y pyrroline carboxylate which in the presence of reductase forms proline

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252. used in citric acid cycle are all except-

a) NAD

b) FAD

c) NADP

d) GDP

Correct Answer - C

Ans. C. NADP

Enzyme	**Reducing equivalent**	**ATP**
Isocitrate dehydrogenase	1 NADH	2.5
alpha ketoglutarate dehydrogenase	1 NADH	2.5
Succinyl CoA	ATP/GTP	1
Succinate dehydrogenase	FADH2	1.5
Malate dehydrogenase	NADH	2.5
	total	10

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253. All of the following steps act as sources of energy in citric acid cycle except -

a) Citrate synthase

b) Isocitrate dehydrogenase

c) Succinyl Thiokinase

d) Succinate Dehydrogenase

Correct Answer - A

Ans. is 'a' i.e.,Citrate synthase

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254. True about glucokinase is -

a) It is present in all cells

b) It is a constitutive enzyme

c) It has a high km

d) It is inhibited by glucose 6 phosphate

Correct Answer - C

Ans. is 'c' i.e.,It has a high km

S. No.	Property	Hexokinase	Glucokinase
1	Location	All cells	Liver and Pancreatic (3 cells
2	Affinity	High	Low
3	Km	Low	High
4	Inhibition by glucose 6 phosphate	Yes	No
5	Induction by Insulin	No (Constitutive enzyme)	Yes (Inducible Enzyme)

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255. All of the following are true about lactate utilisation in liver except -

a) Total net number of ATP formed because of cori's cycle is 6

b) Cori's cycle shifts the metabolic burden from muscle to liver

c) Cori's cycle can not be sustained indefinitely because it is energetically unfavourable

d) Cori's cycle is linked to glycogen synthesis in muscle

Correct Answer - A

Ans. is 'a' i.e., Total net number of ATP formed because of coil's cycle is 6

CORI'S CYCLE

- Muscle uses a molecule of glucose through anaerobic glycolysis and gets 2 ATPs. In this process, glucose becomes two molecules of lactate. The 2 lactate molecules through circulation reach liver. In liver, the two molecules of lactate are utilised through gluconeogenesis to form a glucose molecule at the expense of 6 ATPs. The glucose formed in liver reaches muscle and is utilised for again anaerobic glycolysis if the muscle is still exercising. In case muscle is done with exercising, the glucose which reaches the muscle from liver is used for glycogen synthesis.

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256. Which of the following is true about effect of insulin and glucagon on gluconeogenesis?

a) Insulin favours the formation of fructose 2,6 bisphosphate

b) Fructose 2, 6 bisphosphate is an inhibitor of glycolysis

c) Insulin acts through a kinase

d) Glucagon stimulates PFK.2 activity of the tandem enzyme

Correct Answer - A

Ans. is 'a' i.e., Insulin favours the formation of fructose 2,6 bisphosphate

- Glycolysis and gluconeogenesis are reversal of each other. Hence the two pathways should be regulated in such a way that when one pathway is active, the other one has to be inactive. Otherwise they will end up in futile cycles.

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257. Key enzyme of gluconeogenesis are all except?

a) Pyruvate carboxylase

b) PEP carboxykinase

c) Pyruvate kinase

d) Glucose-6-phosphatase

Correct Answer - C
Ans. is 'c' i.e., Pyruvate kinase

- Mitochondrial pyruvate carboxylase catalyzes the carboxylation of Pyruvate to Oxaloacetate, It is an ATP-requiring reaction, Biotin is the coenzyme.
- Phosphoenolpyruvate Carboxykinase: Catalyzes the decarboxylation and phosphorylation of oxaloacetate to phosphoenolpyruvate(PEPCK) (Cytosol) using GTP as the phosphate donor.
- The conversion of glucose-6-phosphate to glucose is catalyzed by glucose 6-phosphatase

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258. In glycogen synthesis the active form of glucose used is-

a) Glucose 6 phosphate

b) Glucose I phosphate

c) UDP glucose

d) UTP glucose

Correct Answer - C

Ans. is 'c' i.e., UDP glucose

- Glycogen synthesis occurs in liver and Skeletal Muscle
- UDP glucose is the active form of glucose which gets added to the growing glycogen
- The number of high energy phosphates required for attaching a glucose molecule to growing glycogen is 3
- The rate limiting enzyme of glycogen synthesis is glycogen synthase
- Glycogen synthase gets activated by dephosphorylation
- Glycogen synthase attaches glucose residues one by one along a straight chain, linked by a(1,4) linkages. This continues until 11 to 13 residues are attached in a straight chain.
- At branch points in glycogen, a(1,6) linkages should be formed.

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259. UDP glucose is not used in ?

a) Uronic acid pathway

b) Glycogen synthesis

c) Galactose metabolism

d) HMP shunt

Correct Answer - D
Ans. is 'd' i.e., HMP shunt
UDP-glucose is derived from glucose-6-phosphate via glucose-l-phosphate.
The major fate of UDP-glucose is the synthesis of glycogen.
Other uses of UDP-glucose are -
1. In uronic acid (glucoronic acid) cycle to generate UDP glucuronate.
2. Galactose metabolism
3. Glycosylation of proteins, lipids and proteoglycans.

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260. Neonatal hypoglycaemia which does not respond to counter regulatory hormone administration is diagnostic of -

a) Her's disease

b) Cori's disease

c) Anderson's disease

d) Von Gierke's disease

Correct Answer - D

Ans. is 'd' i.e.,Von Gierke's disease

- Glycogen storage disorders presenting with hypoglycaemia are Type I (Von Gierke's disease), Type III (Cori's disease or Forbe's disease), Type VI (Her's disease), Type IX (Fanconi Bickel syndrome)
- The only Glycogen storage disorder which presents as hypoglycaemia not responding to counter regulatory hormone administration is Von Gierke's disease
- Muscle involvement is not a feature of Type I(Von Gierke's disease), Type IV (Andersoen disease), Type VI (Her's disease), Type IX (Fanconi Bickel syndrome)
- Andersen disease or Type IV is the only glycogen storage disease which presents with neither hypoglycaemia nor with muscle involvement. It presents as hepatomegaly and cirrhosis

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261. Which of the following is a serine protease

a) Chymotrypsin

b) Pepsin

c) Carboxypeptidase

d) Caspases

Correct Answer - A

Ans. is'a'i.e., Chymotrypsin lRef: Chatterjee 7h/e p. 4j5-361

* The term Protease is used to represent the group of enzymes that catalyze the cleavage ofpeptide bonds in proteins and peptide molecules with the participation of water as co-reactant. In simple words, proteases catalyze the cleavage of peptide bonds by hydrolysis (addition of water

Serine proteases:-

* These posses a critical serine residue at the active site.
  - Example of serine proteases are trypsin, chymotrypsin, elastase, and thrombin.
* Serine proteases are inhibited by disopropylphosphofluridate which binds covalently to serine residue.
  - The active site of serine proteases contain three critical amino acids serine, histidine and aspartate. These residues are often referred to as catalytic triad

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262. **Essential fatty acids are except:**

a) Arachidonic acid

b) Linoleic acid

c) Palmitic acid

d) Linolenic acid

Correct Answer - A
The essential fatty acids are polyunsaturated fatty acids, ***linoleic acid (18:26) and linolenic acid (18:33).***

Arachidonic acid (20:46) is derived from dietary linoleic acid and is present primarily in membrane phospholipids.

Important derivatives of linolenic acid are eicosapentaenoic acid (20:63) and docosahexaenoic acid (DHA, 22:63) found in human milk and brain lipids.Palmitic acid is a common saturated fatty acid. Arachidonic acid (20C: ro6) is not nutritionally essential because chain elongase system can convert linoleic acid (l8C: <o6) into Arachidonic acid (20C: o6). So arachidonic acid is considered as conditionally essential, because it has to be supplied
in the diet if linoleic acid is not supplemented.
Ref : Botham K.M., Mayes P.A. (2011). Chapter 23. Biosynthesis of Fatty Acids & Eicosanoids. In D.A. Bender, K.M. Botham, P.A. Weil, P.J. Kennelly, R.K. Murray, V.W. Rodwell (Eds), *Harper's Illustrated Biochemistry*, 29e.

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263. Which of the following is a transfatty acid?

a) Oleic acid

b) Elaidic acid

c) Stearic acid

d) Arachidonic acid

Correct Answer - B

Ans. is 'b' i.e., Elaidic acid *[Ref Harper 30"/e p. 213]*

- There are two types of fatty acids :
- Saturated
- Unsaturated
- Cis - trans isomerism is for unsaturated fatty acids.
- Stearic acid is a saturated fatty acid (No cis-trans isomerism)
- Only important unsaturated trans-fatty acid is Elaidic acid (trans-9-octadecenoic)

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264. Activators of Acetyl CoA carboxylase are all except

a) Acyl coA

b) Citrate

c) Glutamate

d) Dicarboxylic acid

Correct Answer - A

Ans. is 'a' i.e., Acyl CoA [Ref Harper 29thle p. 217, 220]

Allosteric modulation of acetyl CoA carboxylase

.. Activaters : Citrate (tricarboxylic acid); glutamate (dicarboxylic amino acid) & other dicarboxylic acids; ATP

?. Inhibitors : Acyl CoA

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265. Arachidonic acid oxidation involves how many cycles of beta oxidation?

a) l0

b) 20

c) 9

d) 8

Correct Answer - C

Ans. is 'c' i.e., 9

- Number of acetyl CoA formed in (3-oxidation of fatty acids = Number of carbon atoms/2.
- Number of cycles of (beta-oxidation required -No of carbon / 2(-1)
- Hence arachidonic acid with 20 carbon atoms undergoes p oxidation to form 10 acetyl CoA by going through (20/2) - 1 cycles i.e., 9 cycles.

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266. All are true about beta oxidation of fatty acids except -

a) Carnitine acyl transferase I is the rate limiting enzyme of fatty acid oxidation

b) Carnitine acyl transferase I is stimulated by Acyl CoA

c) Carnitine Acyl transferase I is stimulated by malonyl CoA

d) Carnitine Acyl transferase I defect causes a decrease in acylcarnitine levels

Correct Answer - C

Ans. is 'c' i.e., Carnitine Acyl transferase I is stimulated by malonyl CoA

- As CATI is the rate limiting enzyme of fatty acid oxidation, its substrate is acyl CoA. As we know that all enzymes get stimulated by their substrates, acyl CoA stimulates CATI.
- Malonyl CoA is a product of acetyl CoA carboxylase (ACC). ACC is the rate limiting enzyme of fatty acid synthesis, an anabolic pathway.
- So, malonyl CoA is an intermediate of anabolic pathway. Hence it is a signal of high energy (Anabolism happens only in high energy status). When the energy is already high, we do not want fatty acids to be further oxidised. We want fatty acids to be only stored. So, malonyl CoA, a signal of high energy inhibits CATI.
- In short, anything which signals low energy stimulates fatty acid oxidation (CATI). So, ADP, NAD, FAD, Glucagon , Acyl CoA stimulate fatty acid oxidation
- Anything which signal high energy inhibit fatty acid oxidation. So, ATP, NADH, FADH2, Insulin and malonyl CoA inhibit fatty acid oxidation.
- Fatty acid oxidation defects present as non ketotic hypoglycaemia,

hyperammonemia, dicarboxylic aciduria. And all fatty acid oxidation defects also present with increase in acyl carnitine levels. One exception is CATI defect. In CATI defect, as acyl CoA is not converted to acyl Carnitine, free carnitine levels are high and acyl carnitine levels are low.

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267. All are true about beta oxidation of fats acids except -

a) Occurs in mitochondria

b) Occurs in peroxisome

c) Results in hydrogen peroxide generation

d) Fatty acid oxidation defects present with ketosis

Correct Answer - D

Ans. is 'd' i.e., Fatty acid oxidation defects present with ketosis

- Fatty acid oxidation defect causes non-ketotic hypoglycemia.
- Fatty acid oxidation happens in mitochondria and in peroxisomes.
- The difference between mitochondrial oxidation and peroxisomal oxidation is that in mitochondria, when the 13 carbon atom is oxidised, the hydrogen atoms are removed. Those hydrogen atoms are used for reducing NAD and FAD to form NADH and FADH2. NADH and FADH2 enter into electron transport chain to form ATP. In peroxisome, the hydrogen atom removed from (3 carbon atom is used to reduce 0_2 forming $F1_20_2$. Only because 11_20_2 is formed in peroxisome by (beta oxidation the organism is called so)

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268. Which of the following is true about Beta oxidation of fatty acids?

a) Stearic acid on oxidation provides 106 ATPs

b) Odd chain fatty acid oxidation provides only propionyl coA

c) Fatty acid oxidation defects cause hypoglycemia

d) Ketone bodies are formed by incomplete oxidation of fatty acid during starvation to increase energy production

Correct Answer - C

Ans. is 'c' i.e., Fatty acid oxidation defects cause hypoglycaemia

Defect in fatty acid oxidation causes hypoglycemia.

About other options

- Stearic acid oxidation produces 122 ATPs.
- Even chain fatty acids are (3-oxidized to acetyl CoA. Odd chain fatty acids are also (3-oxidized normally but the last step produces a 3-carbon propionyl CoA along with an acetyl CoA (instead of 2 molecules acetyl CoA that occurs in even chain fatty acids).
- Ketone body formation (ketogenesis) occurs when there is a high rate of fatty acid oxidation in liver which provides excessive *acetyl* CoA, substrate for ketogenesis.
- When ketone bodies are formed, as we can't expect the 10 ATPs which *we* get from every acetyl CoA through citric acid cycle, the formula for energetics of incomplete oxidation of fatty acids is :

269. Which of the following is true about properties of VLDL/LDL-

a) In electrophoresis, VLDL migrates more cathodal than LDL

b) LDL is formed from liver

c) LDL is formed from Chylomicron

d) VLDL remnants reach extrahepatic tissues

Correct Answer - B

Ans. is 'b' i.e., LDL is formed from liver

- Lipoprotein electrophoresis of a fasting sample shows three bands - HDL, VLDL, LDL in that order from anode to cathode.
- VLDL is synthesized in liver that contains high triglyceride, ChE, cholesterol, phospholipid and Apo B-100. (VLDL particles resemble chylomicrones in composition except that VLDL contains Apo B-100 instead of Apo B-48).
- VLDL particles are secreted in the plasma and as with chylomicron, Apo E and Apo C are transferred from HDL to VLDL. Now VLDL contains Apo B-100, Apo E and Apo C.
- In plasma, triglycerides of VLDL are hydrolysed by same lipoprotein lipase (see above) and apo C is transferred to HDL and the remmants are called IDL.
- 40-60% of IDL is removed by liver via LDL receptor mediated endocytosis, this process require Apo E which acts as ligand for LDL receptors.
- Remaining IDL is remodeled by hepatic (liver) lipase which hydrolyzes more triglyceride to form LDL that contains maximum cholesterol.
- 70% of LDL is removed by liver via LDL receptor and 30% is utilized by peripheral tissues as a source of cholesterol.

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270. Reverse cholesterol transport - all are true except-

a) Transport of cholesterol from extrahepatic tissues to liver

b) ATP Binding Cassette Transporter protein is involved in the conversion of HDL3 to HDL2

c) Lecithin Cholesterol Acyl Transferase helps in the conversion of Spheroidal HDL to Discoidal HDL

d) Cholesterol Ester Transfer Protein helps in increasing HDL level

Correct Answer - D

Ans. is 'd' i.e., Cholesterol Ester Transfer Protein helps in increasing HDL level

- Reverse Cholesterol Transport is the transport of Cholesterol ester and phospholipid from extrahepatic tissues to liver.
- HDL is released by both liver and intestinal cells.
- In both the cases, they are released as discoidal HDL
- Apo Al activates Lecithin Cholesterol Acyl Transferase and it converts discoidal HDL to Spheroidal HDL (HDL3)
- HDL3 activates ABC1 (ATP Binding Casette Transporter 1) to collect cholesterol and phospholipids from extra hepatic tissue membranes. This way HDL3 size increases and density decreases. Hence it forms HDL2.
- This HDL2 reaches liver to empty its contents into liver.
- On the way to liver, if HDL2 encounters IDL, Cholesterol Ester Transfer Protein (CETP) transfers Choelsterol ester from HDL2 to IDL, converting IDL to LDL. Hence CETP decreases HDL level and increases LDL level.

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271. Progesterone synthesis requires -

a) LDL

b) VLDL

c) HDL

d) Chylomicron

Correct Answer - C

Ans. is 'c' i.e.,HDL

- Granulosa cells use follicular fluid HDL as a source of cholesterol for the synthesis of progesterone.
- Under the influence of LH, corpus luteal cells take up cholesterol from follicular fluid HDL and convert cholesterol into progesterone.

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272. Site of small chain fatty acid absorption is -

a) Ileum

b) Duodenum

c) Ascending colon

d) Rectum

Correct Answer - C

Ans. is 'c' i.e., Ascending colon

- Short chain fatty acids (SCFA) are fatty acids with 2 to 6 carbon atoms. They are the major end-products of the microbial digestion of carbohydrates in the alimentary canal. These short chain fatty acids, butyrate particularly is important for colon health because it is the primary energy source for colonic cells and has anti-carcinogenic as well as anti-inflammatory properties that are important for keeping colon cells healthy. Butyrate inhibits the growth and proliferation of tumor cell lines in vitro, induces differentiation of tumor cells, producing a phenotype similar to that of the normal mature cell, and induces apoptosis or programmed cell death of human colorectal cancer cells
- The highest concentrations are observed in the large intestine (caecum and colon) of all the mammals.
- Human caecum and proximal colon have high luminal concentrations of organic nutrients (non-starch polysaccharides from plant cell walls, and proteins not absorbed by the small intestine) which maintain high bacterial growth rates. Against this fermentative background, antiperistalsis ensures retention and thorough mixing of faeces in the proximal colon, which is the site of maximal SCFA production. SCFA absorption is concentration dependent and occurs

most readily in the proximal colon (Includes cecum, ascending colon and transverse colon).

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273. HMG CoA is precursor of all except-

a) Ubiquinone

b) Dolichol

c) Bile pigments

d) Ketone body

Correct Answer - C

Ans. is 'c' i.e., Bile pigments

- 3 - Hydroxy 3 methyl glutaryl CoA or HMG CoA is formed from acetyl CoA.

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274. Refsum's disease is due to deficiency of which of the following enzyme?

a) Malonate dehydrogease

b) Thiophorase

c) Succinate thiokinase

d) Phytanic alpha oxidase

Correct Answer - D
D i.e. Phytanic alpha oxidase
Refsum's disease is a rare autosomal recessive disorder caused by deficiency of phytanic a oxides (Nelson) / a?hydroxylase (Lippincot) / Phytanoyl CoA hydroxylase (Lehninger) results in accumulation of phytanic acid due to its *decreased a - oxidation (i.e. hydroxnlation at a carbon* by fatty acid a hydroxylase)

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275. What is the parameter that is used to assess lipid peroxidation?

a) Malondialdehyde

b) CRP

c) hsCRP

d) Carboxymethyl lysine

Correct Answer - A

Ans. is 'a' i.e.,Malondialdehyde

- ROS can be produced by either breakage of covalent bond, addition of electrons to a molecule or removal of hydrogen by other radicals. They are generally highly reactive species and typically act as electrophilic species or oxidant agents. The most important radicals or pro-oxidant molecules involved in disease processes are superoxide (0_2-), hydroxyl radical (OH), hydrogen peroxide **(H_20_2)** and certain oxides of nitrogen, like nitric oxide (NO) and peroxynitrite (ONOO-)2
- Since it is complex measuring free radicals directly in vivo, it is necessary to carry out the quantification of cellular components which can react with these free radicals, such as proteins, DNA and mainly lipids. Once lipid peroxides are unstable compounds, they tend to degrade rapidly in a variety of sub products. *MDA (Malondialdehyde) is one of the most known secondary products of lipid peroxidation, and it can be used as a marker of cell membrane injury.*
- MDA is a three-carbon, low-molecular weight aldehyde formed by cyclization of aldehydes which have unsaturation in a or 13 positions
- Several methods have been developed to assess MDA, including

quantitative methods using spectrophotometry or fluorimetric detection, high performance liquid chromatography (HPLC), gas chromatography and immunological techniques

- Other markers of oxidative stress include conjugated dienes, ethane and pentane gases, isoprostanes and 4-HNE (4 - hydroxy 2-nonenal)

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276. All are true about ketone bodies except ?

a) Acetoacetate is primary ketone body

b) Synthesized in mitochondria

c) Synthesized in liver

d) HMG CoA reductase is the rate-limiting enzyme

Correct Answer - D
Ans. is 'd' i.e., HMG CoA reductase is the rate-limiting enzyme

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277. **All are features of Abetalipoproteinemia, EXCEPT:**

a) Plasma levels of cholesterol and triglyceride are extremely low

b) Manifest in early childhood with diarrhea

c) Progressive pigmented retinopathy seen

d) Neurological manifestation as ataxia in first decade

Correct Answer - D
Plasma levels of cholesterol and triglyceride are extremely low in this disorder, and chylomicrons. Abetalipoproteinemia usually presents in early childhood with diarrhea and failure to thrive.

The neurological manifestations like decreased distal lower extremity vibratory and proprioceptive sense, dysmetria, ataxia, and the development of a spastic gait, often by the third or fourth decade.

Patients also develop a progressive pigmented retinopathy presenting with decreased night and color vision.

Ref: Harrisons Principles of Internal Medicine, 18th Edition, Page 3153

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278. Amino acid in synthesis of neurotransmitter

a) Glutamate

b) Proline

c) Cysteine

d) Alanine

Correct Answer - A

Ans. is 'a' i.e.,Glutamate

Aminoacid	Neurotransmitter
Glutamate	**Glutamate &** GABA
Glycine	Glycine
Phenylalanine & Tyrosine	Dopamine, Norepinephrine &Epinephrine
Tryptophan	Serotonin

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279. Maximum buffering capacity of a buffer is maximum at pH

a) Less than pka

b) More than pka

c) Equal to pka

d) Has no relation with pka

Correct Answer - C

Ans. is 'c' i.e., Equal to pka *[Ref Harper 30th/e* p. *21 & 29'11e p. 20, 21, 18; Vasudevan 6thie* p. *22, 23]*

- Maximal buffering capacity occurs at pH equal to pka of buffer.
- Therefore, to work as a best buffer at physiological pH amino acid should have pka value close to physiological pH (7.4).
- Amino acids can have buffering action due to three ionizable groups :-
- a-carboxyl group :- Different amino acids have pka value of a-carboxyl group between 3.5-4. So, carboxyl group of amino acids has maximum buffering capacity between pH 3.5-4.
- a-amino group :- Different amino acids have pka value of a-amino group between 8.0-9.0. Thus, a-amino group has maximum buffering capacity between pH 8.0-9.0.
- Special ionizable group (in some amino acids) :- Among special ionizable group of amino acids, imidazole group of histidine has pka value 6.5-7.4, which is closest to physiological pH. Hence, histidine (due to imidazole group) has maximum buffering capacity at physiologial pH.

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280. Essential amino-acid deficiency affect nitrogen balance by

a) Increasing protein degradation

b) Decreasing protein degradation

c) Decreasing protein synthesis

d) Increasing protein synthesis

Correct Answer - C

Ans. is 'c' i.e., Decreasing protein synthesis *[Ref Principles of medical Biochemistry p. 464]*

- Nitrogen balance is the difference between ingested nitrogen and excreted nitrogen.
- Nitrogen balance = N ingested - N excreted
- Because dietary proteins are an important source of nitrogen, nitrogen balance is an important index of protein and amino acid metabolism.
- In healthy adults, nitrogen balance is zero, i.e. a state of nitrogen equlibrium exists, where nitrogen intake is equal to nitrogen excretion.
- Negative nitrogen balance (excretion exceeds intake) in dietary protein deficiency
- In adult, even of protein starved, at least 30-40 gm of amino acids are degraded each day; this amount defines the minimum dietary requirment. If dietary supply drops below this limit, a negative nitrogen balance occurs and the body protein is lost. Essential amino acid deficiency has the same effect because relative deficiency.

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281. Creatinine is formed from :

a) Arginine

b) Lysine

c) Leucine

d) Histamine

Correct Answer - A
Glycine, arginine and methionine all participate in creatine biosynthesis

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282. Acidic amino acids are -

a) Asparagine

b) Arginine

c) None

d) Lysine

Correct Answer - A
Proline is a *unique* amino acid and has an *immino group* (=NH) instead of an amino (NH_2) group found in other amino acid.
Methionine & Cysteine are sulfur containing aminoacids.
The property of photochromicity (i.e. absorbance of ultraviolet light at 250-290nm esp 280nm) is seen with aromatic amino acid (tryptophan > tyrosine > phenylalanine).
Hydrophobic (non polar) aminoacids have no charge on their R group or side chain. Aliphatic (eg methyl, methylene, thioether & imino) side chains and aromatic side chains are nonpolar. So methyl (CH_3) side chain of alanine; propyl (C3H7) side chain of valine; butyl (C_4H_9) side chain of leuicine & isoleucine; thioether side chain of methionine; and *imino group/ pyrrolidine containing side chain of proline* are nonpolar.
Methyl (CH3) side chain of *alanine is nonpolar.* Serine, threonine, tyrosine containing hydroxyl group and cysteine containing sulfhydryl group, are polar aminoacids with neutral/uncharged/nonionic side chain. Positively charged basic amino (NH_3^+)group side chain of *histidine, arginine* and lysine ; and negatively acidic carboxyl (COO-) side chain of *aspartic acid and glutamic acid* is polar.

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283. Function of tyrosinase is

a) Synthesis of norepinephrine

b) Synthesis of dopamine

c) Synthesis of melanin

d) All of the above

Correct Answer - C

Ans. is 'c' i.e., Synthesis of melanin *[Ref Harper 29th/e p. 288-290]*

Note- Tyrosine hydroxylase and tyrosinase catalyzes the conversion of tyrosine to Dopa, but both are defferent enzymes. Tyrosine hydroxylase is involved in catecholamines synthesis in adrenal medulla and sympathetic ganglia, whereas tyrosinase is involved in melanin synthesis in melanoblasts of skin.

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284. Cofactor for dopamine hydroxylase ?

a) Fe

b) Mg

c) Mn

d) Cu

Correct Answer - D
Dopamine 8-hydroxylase is a 'copper' containing monooxygenase that requires ascorbic acid and molecular oxygen.
It catalyzes the formation of norepinephrine.

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285. Rate limiting enzyme in catecholamine synthesis?

a) Dopa decarboxylase

b) N-methyltransferase

c) Dopamine hydroxylase

d) Tyrosine hydroxylase

Correct Answer - D
Ans. is 'd' i.e., Tyrosine hydroxylase

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286. Enzyme which acts on aspartate

a) Serum Glutamate Pyruvate Transaminase *(SGPT)*

b) Serum Glutamate Oxaloacetate Transaminase *(SGOT)*

c) Ornithine transcarbmaylase (OTC)

d) Argininosuccinate lyase *(ASL)*

Correct Answer - B

Ans. is 'b' i.e., Serum Glutamate Oxaloacetate Transaminase (SGOT)

- SGPT catalayses the transamination between Alanine and a Ketoglutarate.
- Alanine + a Ketoglutarate Pyruvate + Glutamate
- It is in no way related to aspartate.
- SGOT catalyses the transamination between Aspartate and a Ketoglutarate

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287. True about glutamate dehydrogenase is A/E

a) Liver mitochondrial enzyme

b) Use both NAD* or $NADP^+$ coenzyme

c) Inhibited by ADP & activated by GTP

d) Reversible oxidative deamination

Correct Answer - C
C i.e. Inhibited by ADP & activated by GTP
During first few days of fasting, there is *rapid breakdown of muscle protein, providing aminoacids (alanine & glutamine mainly) that are used by liver for gluconeognesisQ.*
In the fasting state, the output of alanine from skeleton muscle is in far excess of its concentration in the muscle proteins that are being catabolized. Because it is also formed by transamination of pyruvate produced by glycolysis of muscle glycogen. Alanine is exported to the liver, where it is transaminated *back to pyruvate, which serves as a substrate for gluconeogenesisQ.*

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288. Allosteric stimulator of glutamate dehydrogenase is

a) ATP

b) GTP

c) Palmitoyl CoA

d) Leucine

Correct Answer - D

Ans. is 'd' i.e.,Leucine

- GLDH is allosterically stimulated by ADP, GDP, leucine, valine and isoleucine.
- It is inhibited by ATP, GTP, palmitoyl CoA and Zinc.

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289. Which of the following is a biologically important tripeptide?

a) Thyrotropin releasing hormone

b) Thyroid stimulating hormone

c) Gonadotropin releasing hormone

d) Follicle Stimulating hormone

Correct Answer - A

Ans. is 'a' i.e., Thyrotropin releasing hormone

- Tripeptide is a peptide with 3 aminoacids and 2 peptide linkages.
- Biologically important tripeptides include glutathione, TRH (Thyrotropin Releasing Hormone) and melanostatin.
- TSH is a glycoprotein not a peptide. It is made up of two subunits - a and (I a subunit is a polypeptide with about 92 aminoacids. It is a structural analogue of a subunit of FSH. LH and HCG. B subunit is a polypeptide made up of 118 aminoacids.
- GnRH (Gonadotropin releasing Hormone) is a decapeptide with 10 aminocids.
- FSH is a glycoprotein with two subunits - a and p. a subunit is a polypeptide with about 96 aminoacids. It is a structural analogue of a subunit of TSH. LH and HCG. p subunit is a polypeptide made up of 111 aminoacids.

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290. Carbamoyl Phosphate synthetase I [CPSI] true is

a) It is present in cytoplasm

b) It is involved in pyrimidine synthesis

c) N- Acetyl Glutamate is an allosteric stimulator of CPSI

d) Glutamine is the amino group donor for CPSI

Correct Answer - C

Ans. is 'c' i.e., N- Acetyl Glutamate is an allosteric stimulator of CPSI

PROPERTY	**CPS - I**	**CPS - II**
Pathway	**Urea cycle**	**Pyrimidine synthesis**
Subcellular location	Mitochondria	Cytoplasm
Amino Group donor	Ammonia	Glutamine
Allosteric regulation	Stimulated by N - Acetyl Glutamate(NAG)	Inhibited **by** the products - pyrimidine nucleotides,Uridine,Cyti & Thymidine

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291. Carbamoyl phosphate synthetase I is:

a) Lysosolic enzyme

b) Cytosolic enzyme

c) Mitochondrial enzyme

d) All of the above

Correct Answer - C
Mitochondrial carbamoyl phosphate synthetase I is an enzyme that catalyzes a reaction that produces carbamoyl phosphate.
This enzyme catalyzes the reaction of ATP and bicarbonate to produce carbonyl phosphate and ADP. Carbonyl phosphate reacts with ammonia to give carbamate
Cytosolic carbamoyl phosphate synthetase II uses glutamine rather than ammonia as the nitrogen donor and functions in pyrimidine synthesis.

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292. HHH syndrome is due to defect in ?

a) Tryptophan metabolism

b) Histidine transporter

c) Branched chain AA metabolism

d) Ornithine transporter

Correct Answer - D

Ans. is 'd' i.e., Ornithine transporter *[Ref Textbook of clinical paediatrics* p. *496]*

- Hyperornithinaemia, hyperammonaemia, homocitrullinuria (HHH) syndrome is an autosomal recessive disorder of ornithine transport caused by mutations in gene SLC 25A15 encoding the ornithine transorter protein (ORNT1).
- There is defective activity of the ornithine transporter across the mitochondrial membrane, which causes a functional deficiency of two mitochondrial enzymes:
- Ornithine transcarbomylase : Which catalyses the condensation of ornithine and carbamoylphosphate to citrulline.
- Ornithine-8-aminotransferase (OAT) : Which metabolizes the ornithine to .'-pyrroline-5-carboxylate and ultimately glutamate and proline.
- Ornithine accumulates in the cytoplasm and its deficiency in mitochondria causes a secondary urea cycle disorder and hyperammonemia.

Carbamoylphosphate accumulates and undergoes allternate metabolism to form :

1. Homocitrulline - Excreted in urine
2. Orotic acid
3. Plasma

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293. All of the following can determine protein structure except

a) Edman's Sequencing

b) X ray crystallography

c) Optical rotatory dispersion

d) Spectrophotometry

Correct Answer - D

Ans. is 'd' i.e., Spectrophotometry

Methods used for studying primary structure :

A) Sanger's sequencing

- Sanger's reagent is (1 fluro 2,4 Dinitrobenzene)

B) Edman's Sequencing

- Edman's reagent is Phenylisothiocyanate

C) Reverse Sequencing

- It has to be supplemented by Mass Spectrometry

Methods used for studying secondary structure:

1. Optical Rotatory Dispersion
2. Ocular Dichorism

Methods used for studying tertiary structure:

1. X-ray Crystallography
2. UV spectroscopy
3. NMR spectroscopy

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294. Edman's reagent is used for

a) DNA sequencing

b) Protein sequencing

c) Protein Denaturation

d) DNA denaturation

Correct Answer - B

Ans. is 'b' i.e., Protein sequencing

- Edman's reagent is Phenyl isothiocyanate.
- Phenyl isothiocyanate is used for sequencing proteins
- Phenyl isothiocyanate binds to a aminogroups. In a protein, only aminoterminal aminoacid's a aminogroup will be free.
- Hence when Phenylisothiocyanate is added to a peptide which is adsorbed on to a glass fibre coated with a polymer, in the presence of 12% trimethylamine, it reacts with the amine group of N terminal aminoacid.
- By acid hydrolysis, the first aminoacid is cleaved from the polypeptide chain and the aminoacid is identified by chromatography.
- The cycle is continued. This way 50 aminoacids can be sequenced.

295. Most abundant aminoacid in brain is

a) Glutamate

b) Aspartate

c) Glutamine

d) Asparagine

Correct Answer - A

Ans. is 'a' i.e., Glutamate

- Glutamate is the most abundant free alpha aminoacid found in Brain.
- It is an acidic polar aminoacid.
- It is the predominant excitatory neurotransmitter of brain.
- It is synthesised in brain from glutamine and a Ketoglutarate.
- Glutamate is released from presynaptic excitatory neurons in a calcium dependent manner.
- Glutamate acts on both inotropic and metabotropic receptors.
- Inotropic receptors of glutamate include :
- Kainate receptors
- AMPA receptors
- NMDA receptors

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296. Cystine has how many molecules of cysteine?

a) 1

b) 2

c) 3

d) 4

Correct Answer - B

Ans. is 'b' i.e., 2

- Cysteine is a sulphur containing aminoacid
- It is a polar but uncharged aminoacid
- Cysteine with a sulfhydryl group can get oxidised and forms a dimer (2) called as cystine.
- Cysteine acquires its polar nature only by virtue of its sulfhydryl group.

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297. Vitamin given in homocysteinuria are all except

a) Vitamin B6

b) Vitamin B12

c) Folate

d) Thiamine

Correct Answer - D

Ans. is 'd' i.e., Thiamine

- Major fate of homocysteine is that it gets converted into cysteine in the presence of cystathionine I synthase. Cystathionine p synthase is dependent on pyridoxal phosphate.
- Hence defect of cystathionine p synthase can result in homocysteinuria. This is called as classical homocysteinuria. This condition responds to *B6 administration,* as the enzyme cystathione p synthase is dependent on B6.
- Minor fate of homocysteine is that it gets converted into methionine in the presence of methionine synthase. Methionine synthase is dependent on *methyl cobalamine (coenzyme form of Vitamin B12).* Methyl group donor for methylcobalamine is *methyl THFA.*
- Homocysteinuria is also caused by defect of methionine synthase. As this enzyme is dependent on Vitamin B12 and THFA, homocysteinuria responds to B12 and THFA administration

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298. Glutathione is used to detoxify which free radical?

a) Hydrogen peroxide

b) Superoxide

c) Peroxyl radical

d) Singlet Oxygen

Correct Answer - A

Ans. is 'a' i.e., Hydrogen peroxide

- Glutathione is a tripeptide.
- It is gamma glutamyl cysteinyl glycine
- It is denoted as GSH - because it has cysteine with a sulphydryl group
- It is used to detoxify hydrogen peroxide and lipid peroxides in the presence of glutathione peroxidase.
- Glutathione can also detoxify peroxyl radical. Peroxyl radical can not get reduced by enzymatic reactions. They get detoxified by antioxidants like vitamin E and Glutathione
- Singlet oxygen gets detoxified principally by polyphenol antioxidants
- Superoxide radicals are detoxified by Superoxide dismutase (SOD) using Zinc as electron acceptor or donor (Some classes of SODs use iron or Nickel as electron acceptor or donor)

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299. Match enzyme with the disease caused due to its deficiency -

Enzyme	Disease
Fumarylacetoacetate	A. Tyrosinemia Type II
Tyrosine transaminase	hydroxylase
Tyrosinase	B. Homogentisate Oxidase
Alkaptonuria	C. Tyrosinemia Type I
	D- Albinism

a) I → D, 2 → C, 3 → A, 4 → B

b) I → A,2 → C,3 → D, 4 → B

c) 1 → C,2 → D,3 → A,4 → B

d) I → C, 2 → A, 3 → D, 4 → B

Correct Answer - D

Ans. is 'd' i.e., 1 -[p] C, 2 → A, 3 → D, 4 → B *[Ref Harper 29th/e* p. *289]*

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300. Which of the following has two amino groups-

a) Glycine

b) Arginine

c) Lysine

d) Asparagine

Correct Answer - B

- Histidine has two imino groups.
- Lysine has one amino group.
- Arginine has two amino groups

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301. Alternate fuel for brain is

a) Glucose

b) Ketone bodies

c) Fatty acid

d) Aminoacid

Correct Answer - B

Ans. is 'b' i.e., Ketone bodies

- **There** is no stored fuel in brain, but it utilizes 60% of total energy under resting conditions.
- Glucose is virtually the sole fuel for the brain, except in prolonged starving when ketone bodies are the major source.
- Fatty acids do not serve as fuel for the brain, because they are bound to albumin in plasma; hence cannot cross the blood-brain barrier.

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302. Pyruvate can be a substrate of all except

a) Lactate Dehydrogenase

b) Malic enzyme

c) Aspartate transaminase

d) Alanine transaminase

Correct Answer - C

Ans. is 'c' i.e., Aspartate transaminase

- There are several pathways into which pyruvate can enter. The pathway chosen in a given tissue depends on its state of oxygenation and prevailing metabolic conditions, as described below :
- Oxidative decarboxylation to acetyl CoA
- In tissues that are adequately perfused with oxygen (i.e., under aerobic conditions), pyruvate undergoes oxidative
- decarboxylation to form acetyl CoA, which is further catabolized to CO_2 and H_20 via citric acid cycle (Krebs cycle). This reaction serves as a bridge between glycolysis and Kreb's cycle. Thus, pyruvate serves as the source of substrate of first reaction of TCA (Citric acid cycle), i.e., acetyl CoA.

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303. Gas released from oligosaccharide metabolism by intestinal bacteria is

a) Carbondioxide

b) Sulphur dioxide

c) Nitric oxide

d) Methane

Correct Answer - D

Ans. is 'd' i.e., Methane

- Some food items are high in indigestible oligosaccharides . Eg, transgalactooligosaccharides, fructooligosaccharides (Inulin)
- Since these oligosaccharides do not get digested in the small intestine, they reach the large intestine.
- Large intestinal microorganisms breakdown these oligosaccharides to form short chain fatty acids like propionate, butyrate. These short chain fatty acids are found to be trophic to intestinal mucosa. It has anti-inflammatory effects too. Hence these are found to protect intestinal malignancy. This is the basis of prebiotics being supplemented to people with intestinal inflammatory disorders and to maintain intestinal flora.
- But the downside of these indigestible oligosaccharides is that, when microorganisms act on these oligiosaccharides, they result in gas production. The gases produced includes the usual hydrogen, nitrogen and carbondioxide. Apart from that when oligosaccharides are acted upon by microorganisms, it results in methane production.
- This methane is found to have the bloating and flatulence effect.

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304. Which vitamin is required for conversion of serine to glycine?

a) Vit C

b) B12

c) Pyridoxine

d) Thiamine

Correct Answer - C

Ans. is 'c' i.e., Pyridoxine *[Ref Harper 29^{0}/e* p. *267-268]*

- Glycine is a non essential amino acid synthesized from another nonessential aminoacid serine
- Serine in the presence of Serine hydroxyl methyltransferase (SHMT) gets converted to glycine. SHMT is a pyridoxine dependent enzyme. This step uses tetrahydrofolate as coenzyme and it gets converted to N5, N10 methylene THFA, which then acts as 1 carbon donor and helps in the conversion of uridine to thymidine.

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305. Headache and papilledema are features of toxicity of which vitamin?

a) Vitamin A

b) Vitamin D

c) Vitamin C

d) Vitamin E

Correct Answer - A

Ans. is 'a' i.e., Vitamin A

Hypervitaminosis A

- Caused by consumption of food rich in vitamin A like fish or liver (not by excessive intake of carotenoids as the conversion of carotene to vitamin A is regulated).

Mechanism of toxicity:

- Suppresses osteoblasts and stimulates osteoclasts.
- High retinol concentrations stimulate lysosomal enzyme release and cause local tissue damage.
- Features include anorexia, irritability, headache, skin peeling, vomiting. Headache, vomiting and papilledema are found to be caused by increase in intracranial tension. Hence this condition is called as pseudotumourcerebri. As vitamin A stimulates osteoclasts, hypercalcemia, bony projections, pathological fractures are also observed as features.

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306. Which of the following is teratogenic:

a) Folate

b) Cyanocobalamin

c) Vitamin A

d) Vitamin C

Correct Answer - C

Ans. C: Vitamin A

Pharmacological doses of vitamin A are teratogenic and in pregnancy the daily dose must not exceed 6000-8000 IU.

Synthetic analogues of vitamin A:

* Tretinoin
* Isotretinoin
* Etretinate
* Acetretin
* Teratogenic drugs

Drugs and medications:

* Tobacco Caffeine
* Drinking alcohol (ethanol) (fetal alcohol spectrum disorder),
* Isotretinoin (13-cis-retinoic acid)
* Temazepam
* Nitrazepam
* Aminopterin or methotrexate
* Androgenic hormones Busulfan
* Captopril, enalapril
* Coumarin
* Cyclophosphamide
* Diethylstilbestrol
* Phenytoin (diphenylhydantoin)

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Lithium
* Methimazole
* Penicillamine
* Tetracyclines
* Thalidomide
* Trimethadione
* Flusilazole
* Valproic acid

Environmental chemicals:
* Polycyclic aromatic hydrocarbons (polynuclear aromatic hydrocarbons)
* Polychlorinated biphenyls (PCBs)
* Polychlorinated dibenzodioxins a.k.a dioxin,
* Organic mercury

Ionizing radiation:
* Atomic weapons fallout (Iodine-131, uranium)
* Background radiation

Diagnostic x-rays
* Radiation therapy

Infections:
* Cytomegalovirus
* Herpes virus
* Parvovirus B19
* Rubella virus (German measles)
* Syphilis
* Toxoplasmosis An easy way to remember maternal infections is TORCH: Toxoplasmosis, Other agents, Rubella, CMV and HSV.

Metabolic imbalance:
* Alcoholism

Diabetes
* Folic acid deficiency
* Iodine deficiency
* Hyperthermia

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307. Alcoholism leads to deficiency of which vitamin ?

a) Vitamin A

b) Vitamin B1

c) Vitamin D

d) Vitamin B6

Correct Answer - B

Ans. is 'b' i.e.,Vitamin B1

Of all the micronutrients, thiamine **will** be the first micronutrient to become deficient. Reason is, apart from the person missing his mixed balanced diet, alcohol is also found to interfere with thiamine absorption. The third reason related to thiamine deficiency in a chronic alcoholic is that alcohol interferes with magnesium absorption. Magnesium is necessary for activation of thiamine to its coenzyme form thiamine pyrophosphate in the presence of thiamine kinase.

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308. Vitamin B12 is required for all of the following except ?

a) Conversion of homocysteine to methionine

b) Conversion of homocysteine to cysteine

c) Conversion of propionyl coA to succinyl CoA

d) Conversion of methyl THFA to THFA

Correct Answer - B

Ans. is 'b' i.e., Conversion of homocysteine to cysteine

Active form of vitamin B12 are methylcobalamine and deoxyadenosylcobalamine. Following reactions require vitamin B12 coenzyme :

i) Isomerization of methylmalonyl CoA to succinyl CoA :

- In this reaction, active form of vitamin B12 is deoxyadenosyl cobalamine.
- Propionyl-CoA is produced as catabolic end product of some alipathic amino acids and (3-oxidation of odd chain fatty acids. Propionyl CoA is then converted to succinyl CoA through methylmalonyl-CoA.
- Thus methylmalonyl-CoA is accumulated and excreted in urine as methylmalonic acid (methylmalonate) in vitamin **B12** deficiency, i.e. methylmalonic aciduria.

ii) Conversion of homocystein to methionine

- In this reaction, active form is methylcobalamine.
- This is the only reaction which requires both vitamin 8_{12} (as methylcobalamine) and folic acid (as N5-methyl-114-folate).
- The reaction is catalyzed by the enzyme cobalamin-dependent methionine synthase also called 5- methyltetrahydrofolate -

homocysteine methyltransferase.

309. Which of the following vitamins is significantly synthesised in gut by intestinal flora?

a) Folate

b) B12

c) Biotin

d) B6

Correct Answer - A:B:C

Ans. is 'c > 'b' & 'a' i.e., Biotin > B12 & Folate

- Though vitamins are supposed to be essential micronutrients which are supposed to be supplied in the diet, some vitamins like Vitamin D and Niacin are endogenously synthesised.
- Vitamin D3 or cholecalciferol is synthesised in the skin epidermis when UV light acts on 7 dehydrocholesterol which is present in the malphigian layer. UV light opens up one of the rings of cholesterol, converting cholesterol into a secosteroid which is cholecalciferol.
- Cholecalciferol reaches liver. In liver it is hydroxylated at 25th position by 25 a hydroxylase to form 25 hydroxycholecalciferol
- 25 hydroxycholecalciferol reaches the kidney. It is hydroxylated at 1st position by 1 a hydroxylase to form 1,25 dihydroxycholecalciferol, the active form of vitamin D.
- Niacin's active coenzyme forms NAD and NADP are synthesised endogenously from aminoacid tryptophan
- Apart from these two vitamins synthesised by human metabolic pathways, there are vitamins like Biotin, Vitamin K which are synthesised to significant amount in large intestine by intestinal microorganisms. Research has identified synthesis of folate and B12

as well in large intestine.

- Though they are synthesised in large intestine, as all water soluble vitamins get absorbed in small intestine, only endogenously synthesised Biotin and Vitamin K are found to contribute significantly to metabolic pathways. That is why biotin and vitamin K deficiencies are relatively rare.

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310. Chain breaking antioxidants are all except -

a) Tocopherol

b) Ascorbic acid

c) Polyphenolic flavinols

d) Superoxide dismutase

Correct Answer - D

Ans. is 'd' i.e., Superoxide dismutase

- Chain breaking antioxidants are molecules which can donate an electron or accept electron from unstable intermediates of lipid peroxidation converting them into stable intermediates.

They are of two two types

- Lipid phase chain breaking antioxidant
- Aqueous phase chain breaking antioxidant
- Lipid phase chain breaking antioxidant
- The most important lipid phase chain breaking antioxidant is a tocopherol. a tocopherol reacts with peroxyl radical to form tocopheroxyl radical with excess charge associated with extra electron being distributed along the chromane ring.
- Aqueous phase chain breaking antioxidant
- The most important chain breaking antioxidant of this type is ascorbic acid or vitamin C. It can scavenge many superoxide radicals. Most importantly it helps by regenerating tocopherol after it is oxidised during the process of reducing peroxyl radicals.
- Apart from vitamin C we have a group of polyphenol flavinols like epitachin gallate which can reduce oxidant species in aqueous phase. These are present in green tea and some antioxidant supplements

- Superoxide dismutase is an antioxidant enzyme which helps in detoxifying superoxides to form molecular oxygen and hydrogen peroxide. It is not a chain breaking antioxidant

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311. Which of the following elements is known to influence the body's ability to handle oxidative stress?

a) Fluride

b) Iron

c) Copper

d) Selenium

Correct Answer - D
Ans. is 'd' i.e., Selenium *[Ref: Pankaj Naik p. 382]*
The activity of the antioxidant enzymes depends on supply of minerals:?
* Manganese
* Zinc
* Copper
* Selenium
- Manganese, copper and zinc are required for the activity of superoxide dismutase.
- Selenium is required for the activity of glutathione peroxidase.

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312. Vitamin B12 deficiency causes all except ?

a) Homocysteinuria

b) Methylmalonic aciduria

c) Subacute combined degeneration

d) Epinephrine excess

Correct Answer - D

Ans. is 'd' i.e.,Epinephrine excess *[Ref Dinesh Puri 3rd le p. 381]*

- Deficiency of vitamin B12 causes Pernicious anemia, megaloblastic anemia (secondary to functional folate deficiency due to folate trap), methylmalonic aciduria due to accumulation of methylmalonyl-CoA, and neuropathy, like subacute combined degeneration (SACD) and demyelination.
- There may homocysteinuria as methionine synthase, a methylcobalamine dependent enzyme, is defective.

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313. Deficiency of which vitamin during pregnancy predisposes to meningomyelocele?

a) Folic acid

b) Biotin

c) Pyridoxine

d) Thiamine

Correct Answer - A

Ans. is 'a' i.e.,Folic acid

Folic acid deficiency in pregnancy predisposed to NTD (e.g. myelomeningocele, meningocele, spina bifida).

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314. Richest source of vitamin B12 ?

a) Meat

b) Green leafy vegetables

c) Corn oil

d) Sunflower oil

Correct Answer - A
Ans. is 'a' i.e., Meat

- Vitamin B12 is naturally found in animal products, including fish, meat, poultry, eggs, milk, and milk products.
- Vitamin B12 is generally not present in plant foods, but fortified breakfast cereals are a readily available source of vitamin B12 with high bioavailability for vegetarians.

Rich source of vitamin B12→

- Beef, liver, and chicken.
- Fish and shellfish such as trout, salmon, tuna fish, and clams.
- Fortified breakfast cereal.
- Low-fat milk, yogurt, and cheese.
- Eggs.

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315. Regarding NAD and NADP, true is ?

a) Precursor is tyrosine

b) Malic enzyme is an NAD dependent enzyme

c) High leucine causes niacin deficiency

d) Niacin deficiency causes cutaneous vasodilatation

Correct Answer - C

Ans. is 'c' i.e., High leucine causes niacin deficiency

- NAD and NADP are nicotinic acid derivatives which is synthesized from tryptophan (not tyrosin)
- Malic enzyme is NADP dependent enzyme (not NAD dependent)
- Excess of leucine inhibits the conversion of tryptophan into niacin and causes pellagra.
- Niacin deficiency causes Pellagra. Pellagra characterised by the three Ds - Diarrhoea, Dermatitis and Dementia is caused by niacin or vitamin B3 deficiency.

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316. Antistress Vitamin is?

a) Vitamin B1

b) Vitamin B2

c) Vitamin B3

d) Vitamin B5

Correct Answer - D
Ans. is 'd' i.e., Vitamin B5
Vitamin B5 or pantothenic acid is called as an antistress vitamin as it is found to have an impact on cortisol release and is found to support our immune system.

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317. True about Purine synthesis ?

a) Glutamine is the amino group donor for N9

b) PRPP synthetase is the rate limiting enzyme of purine synthesis

c) THFA is necessary for forming C6 of purine ring

d) GMP is the first nucleotide to be formed during purine synthesis

Correct Answer - A

Ans. is 'a' i.e.,Glutamine is the amino group donor for N9

- In purine nucleotide synthesis, first Ribose 5 phosphate is activated by PRPP synthetase to form PRPP.
- This PRPP gets attached to N9 (source is glutamine) in the presence of PRPP glutamine amido transferase. This is the rate limiting enzyme of purine synthesis.
- PRPP synthetase is a common enzyme of pyrimidine nucleotide synthesis and of niacin adenine dinucleotide synthesis. As PRPP synthetase is not committed for Purine nucleotide synthesis, it can not be considered as the rate limiting enzyme of purine synthesis.
- In purine synthesis, Inosine monophosphate (IMP) is first formed
- IMP on amination with Aspartate gives rise to AMP in the presence of adenylosuccinate synthetase. This step needs GTP as a source of energy
- IMP on dehydrogenation by IMP dehydrogenase followed by amination with glutamine will give rise to GMP. This step used ATP as a source of energy

318. True about pyrimidine catabolism is ?

a) It is a source of uric acid

b) β aminoisobutyrate is generated

c) Unlike other catabolic pathways, it does not generate intermediates of citric acid cycle

d) Increased pyrimidine catabolism causes decreased synthesis of carnosine

Correct Answer - B

Ans. is 'b' i.e., β aminoisobutyrate is generated

- In pyrimidine catabolism, first cytidine and thymidine are converted to uridine by deamination and demethylation respectively.
- Uridine in the presence of phosphorylase gets converted into uracil.
- Uracil undergoes hydrogenation in the presence of dihydrouracil dehydrogenase to form dihydrouracil
- Dihydrouracil hydratase opens the ring of dihydrouracil to form a linear structure

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319. Regarding FISH all are true except ?

a) Used to detect copy number variations

b) Used to detect balanced translocations

c) Requires oligonucleotides

d) Requires DNA polymerase

Correct Answer - D

Ans. is 'd' i.e., Requires DNA polymerase

- **Fluoroscent in Situ Hybridisation** is a cytogenetic technique used to detect chromosomal abnormalities.
- This technique uses fluorescently labelled **oligonucleotides** or DNA probes. These probes bind to specific sequences of a chromosome. Attached to the probes are reporter fluorescent dyes which under fluorescence microscopy confirm the presence or absence of a particular chromosomal aberration.
- In FISH, the target is the nuclear DNA of either interphase cells or of metaphase **chromosomes** affixed to a microscope slide. When a specific probe is added, it anneals to its complementary sequence in the affixed DNA. As the probe is labelled with a reporter molecule it is visualized by fluorescence microscopy

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320. All of the following are true about Nucleic Acid Sequence Based Amplification except ?

a) It is a specific amplification of RNA

b) It is a replacement for reverse transcriptase PCR

c) Denaturation is carried out at 94°C

d) It requires Reverse transcriptase.

Correct Answer - C

Ans. is 'c' i.e., Denaturation is carried out at 94°C

- Nucleic Acid Sequence Based Amplification (NASBA) or Isothermal RNA amplification is a replacement for Reverse transcriptase PCR (RT-PCR).
- Both NASBA and RT-PCR are used for amplifying desired or specific RNA fragments.
- In RT-PCR, first the desired RNA is converted to dsDNA using reverse transcriptase and then the dsDNA is amplified using PCR technique

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321. The linkage which links individual nucleotides in a polynucleotide chain is -

a) p N- Glycosidic linkage

b) a N - glycosidic linkage

c) 3'5' Phosphodiester linkage

d) 5'3' Phosphodiester linkages

Correct Answer - C

Ans. is 'c' i.e., 3'5' Phosphodiester linkage

Nucleoside	N-glycosidic bond between pentose sugar and nitrogenous base.
Nucleotide (monophasphate nucleatide)	Posphoester linkage (not phosphodiester) between nucleoside and phosphate grp.
Diphosphate & polyphosphate nucleotides	Acid anhydride linkage between monophosphate & other phosphate grp
Polynucleotide chain	3'5' phosphodiester linkage between 3' hydroxyl group nucleotide with 5' phosphate group of next nucleotide.

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322. Bond formation between ribose sugar and nitrogen is ?

a) Acidanhydride linkage

b) Phosphodiester linkage

c) Phosphoester linkage

d) Glycosidic linkage

Correct Answer - D
Ans. is 'd' i.e., Glycosidic linkage
Pentose sugar (ribose or deoxyribose) is linked to a nitrogenous base (purine or pyrimidine) via covalent N-glycosidic bond to form nucleoside

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323. Ataxia telangiectasia is caused by a defect of ?

a) Base Excision Repair

b) Nucleotide Excision repair

c) Mismatch repair

d) ds DNA break repair

Correct Answer - D

Ans. is 'd' i.e., ds DNA break repair

DNA repair	**Defect associated**
Mismatch repair	Hereditary Non polyposis Colon Cancer
Nucleotide Excision Repair	Xeroderma pigmentosa, Cockayne syndrome
Double Stranded DNA Break Repair	Ataxia Telangiectasia, Bloom's syndrome, Fanconi's anemia

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324. Jumping genes are ?

a) Moderately repetitive sequences

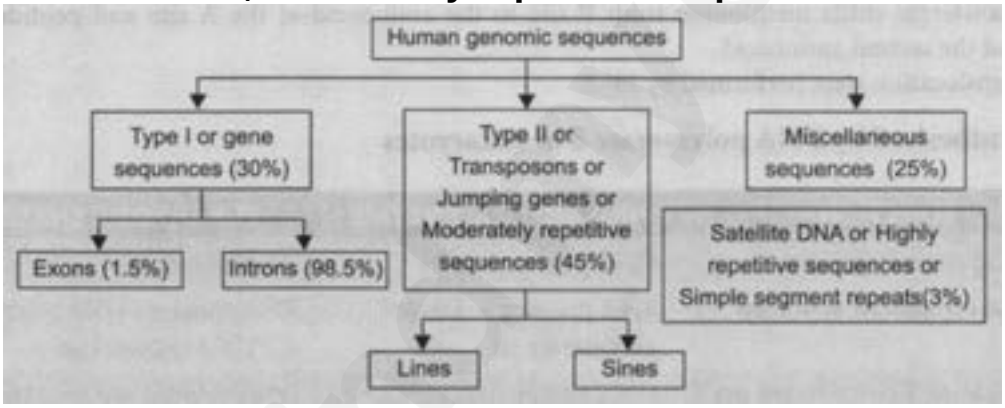
b) Highly repetitive sequences

c) Satellite sequences

d) Simple segment repeat sequences

Correct Answer - A

Ans. is 'a' i.e., Moderately repetitive sequences



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325. Molecular mimicry is established in the presence of ?

a) Cysteine

b) Alanine

c) Glycine

d) Tryptophan

Correct Answer - A

Ans. is 'a' i.e., Cysteine

- Molecular mimicry is caused by structural homology or similarity between foreign antigens and self-antigens.
- As a result of structural similarity a T cell or B cell activated against a foreign antigen cross reacts with self-antigen and causes autoimmunity.
- Molecular mimicry does not always expect a sequence similarity to get initiated. It is found to be induced even when the self antigens and exogenous antigens share the same binding motif with MHC (Major Histocompatibility Complex).
- This binding motif similarity is more often found in the presence of cysteine (forms disulphide bridges), arginine or lysine (form hydrogen bonds) in the binding site of antigens.

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326. DNA fragments are separated by ?

a) Ultracentrifugation

b) Agarose gel electrophoresis

c) Paper chromatography

d) High pressure liquid chromatography

Correct Answer - B
Ans. is 'b' i.e., Agarose gel electrophoresis *[Ref Essentials of biochemistry p.* 756]
DNA is cut into large fragments, using restriction enzymes. These fragments are then separated by gel electrophoresis (either agarose or polyacrylamide gel electrophoresis).

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327. Left handed helix is seen in -

a) B DNA

b) A DNA

c) Z DNA

d) F DNA

Correct Answer - C

Ans. is 'c' i.e., Z DNA

Based on quartenary structure of DNA many conformations are possible out of the common three forms are – B DNA, A DNA and Z DNA.

Z DNA

- It is found in those regions of chromosomes which are rich in GC sequences
- It is a left handed helix
- Every full turn has 12 base pairing.

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328. Aminoacyl tRNA gets attached to which site of ribosome?

a) P site of 40s ribosome

b) A site of 60s ribosome

c) A site of 40s ribosome

d) P site of 60s ribosome

Correct Answer - B

Ans. is 'b' i.e., A site of 60s ribosome

- Translation is a process by which nucleotide bases of mRNA get translated as aminoacid sequences of polypeptide chain. It takes part in free ribosome.
- Free ribosome reads the mRNA from 5' end to 3' end. It reads the codons of mRNA one by one. Depending upon the codon that is present in mRNA, ribosome is capable of attaching a complementary anticodon containing tRNA.
- This tRNA carries a corresponding aminoacid. This way the polypeptide chain grows from amino terminal end to carboxy terminal end.
- Eukaryotic ribosome is a 80s unit. It dissociates into 40s and 60s subunits. 60s subunit contains P site and A site.
- When ribosome enters into chain elongation, on the P site of 60s, is attached the AUG codon of mRNA, to which initiation methionine tRNA is attached and A site is free

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329. Okazaki fragments are formed during ?

a) Transcription

b) Translation

c) DNA replication

d) None

Correct Answer - C
Ans. is 'c' i.e., DNA replication

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330. Splicing is a process of ?

a) Activation of protein

b) Removal of introns

c) Synthesis of protein

d) Replication of DNA

Correct Answer - B
In molecular biology and genetics, splicing is a modification of an RNA after transcription, in which introns are removed and exons are joined.
This is needed for the typical eukaryotic messenger RNA before it can be used to produce a correct protein through translation.
For many eukaryotic introns, splicing is done in a series of reactions which are catalyzed by the spliceosome a complex of small nuclear ribonucleoproteins (snRNAs), but there are also self-splicing introns.

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331. Proteins are stored as ?

a) Structural proteins

b) Functional proteins

c) Fats

d) Lysosomal enzymes

Correct Answer - C

Ans. is 'c' i.e., Fats

- There is no storage form of protein
- Hence the aminoacids formed by breakdown of proteins undergo catabolism
- During catabolism, most of the aminoacids give off their amino groups and then the carbon skeleton undergoes catabolism
- On catabolism, the carbon skeleton of aminoacids give rise to glycolytic intermediate or citric acid cycle intermediates.

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332. Flow cytometry is done on

a) Polycythemia

b) Thrombocytosis

c) Basophil

d) Lymphocytes

Correct Answer - D
Ans. d. Lymphocytes
"Flow cytometry can rapidly and quantitatively measure several individual cell characteristics, such as membrane antigens and the DNA content of tumor cells. Flow cytometry has also proved useful in the identification and classification of tumors arising from T and B lymphocytes and from mononuclear-phagocytic cells."- *Robbins 8/e p324*

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333. True about tRNA ?

a) 80% of total RNA

b) Contains 50-60 nucleotides

c) CCA sequence is transcribed

d) Longest RNA

Correct Answer - C
"The CCA tail is a CCA sequence at 3' end of the tRNA molecule. In prokaryotes, CCA sequence is transcribed. In eukaryotes, the CCA sequence is added during processing".
"tRNA is the smallest of three major species of RNAs" — Dinesh puri
tRNA comprises 15% of total RNA in the cell. It contains 73-93 nucleotide residue.

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334. Most commonly used vector for DNA cloning ?

a) Plasmid

b) Virus

c) Cosmid

d) Phage

Correct Answer - A

Ans: A. Plasmid

A cloning vector is a carrier DNA molecule to which human DNA fragment is attached. Normally, foreign DNA fragments cannot self-replicate within host cell. Therefore, they are joined to a vector DNA, that can replicate within host cell.

The five major types of cloning vectors used are -

* Plasmids
* Viral vectors/Bacteriophages
* Cosmids
* Bacterial Artificial Chromosomes (BACs)
* Yeast artificial chromosomes (YACs)

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335. Chimeric DNA true are all except ?

a) Formed by linking DNA fragments of unrelated genome

b) Sticky end producing restriction endonucleases favour formation of chimeric DNA

c) They don't require DNA ligases

d) The organism harbouring a chimeric DNA has features of themselves and the properties of the insert

Correct Answer - C

Ans. is 'c' i.e., They don't require DNA ligases

- Chimeric DNA or recombinant DNA is formed by linking DNA fragments of two unrelated genome.
- It is a step involved in recombinant DNA technology.
- It is done to introduce a favourable quality into an organism like ability to produce insulin by E.Coli (Done by linking insulin cDNA into a vector and introducing the recombinant vector or chimeric DNA into E.Coli) or insect resistance in crops (done my introducing the gene fragment capable of producing Bacillus thurengiensis) into Ti plasmid and introducing the chimeric DNA or recombinant DNA into growing plants).

336. **What is the role of catabolite activator protein (CAP) in LAC operon?**

a) Positive regulator

b) Negative regulator

c) Attenuation

d) Constitutive expression

Correct Answer - A
Catabolite activator protein, CAP is an activator required for high level transcription of the lac operon. CAP protein exerts positive control and lac repressor exerts negative control.
What is an Operon?

In prokaryotes, the genes coding for proteins involved in a particular metabolic pathway are often sequentially arranged- together on the chromosome along with a single promoter or regulatory region. This entire cluster is termed as an operon, for eg, the lac operon (coding proteins for metabolism of lactose) or trp operon (coding proteins needed for the synthesis of tryptophan).

Lac operon:

Lac operon contains lacZ, lacY and lacA genes encoding beta galactosidase, galactose permease and thiogalactoside transacetylase and is preced by an operator (O) site and promoter (P) site. The operon is transcribed by RNA polymerase to produce a single polycistronic mRNA that is translated to produce all three enzymes which are involved in lactose metabolism.

337. LacY in Lac Operon codes for ?

a) B Galactosidase

b) Galactoside Permease

c) Thiogalactoside Transacetylase

d) Repressor

Correct Answer - B

Ans. is 'b' i.e., Galactoside Permease

- These code for 3 proteins that are involved in catabolism of lactose. These genes are 'Z' gene (codes for P-galactosidase), 'Y' gene (codes for galactoside permease), and 'A' gene (codes for thiogalactoside transacetylase).

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338. Ubiquitin Proteasome pathway is used for degradation of ?

a) Extracellular long lived proteins

b) Intracellular long lived proteins

c) Intracellular short lived proteins

d) Extracellular short lived proteins

Correct Answer - C

Ans. is 'c' i.e., Intracellular short lived proteins

- Extracellular proteins and intracellular long lived proteins get degraded in lysosomes with the help of cathepsin
- Intracellular short lived proteins get labelled with ubiquitin once their life span gets over.

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339. Small RNAs are ?

a) Between 200 and 500 bps in length

b) Coded by small exons

c) A mode of regulation of gene expression

d) Always endogenously synthesised

Correct Answer - C

Ans. is 'c' i.e., A mode of regulation of gene expression

- Small RNAs are less than 200 nucleotides in length.
- They are coded by intronic sequences of genes.
- They help in regulation of gene expression through GENE SILENCING mechanism
- The miRNA gene sequences located within intronic sequences are transcribed by RNA polymerase III to form Pri-miRNA.
- Pri- miRNA is processed by microprocessor complex to form a stem loop structure, Pre-miRNA.

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340. All of the following are true about collagen structure except -

a) Collagen is secreted by fibroblasts as procollagen

b) Lysyl oxidase is dependent on Vitamin C

c) Hydroxylysine undergoes glycosylation

d) Glycine is the most abundant aminoacid of collagen

Correct Answer - B

Ans. is 'b' i.e., Lysyl oxidase is dependent on Vitamin C

- Collagen is the most abundant protein in the body.
- Collagen is a triple helix. It is made up of 3 polypeptide chains - Each polypeptide chain has about 1000 amino acids. It is made up of repetitive units of (Gly- X - Y), where X and Y are most commonly proline and hydroxyproline. Hence 33% of aminoacid residues of collagen is glycine - the most abundant aminoacid of collagen.
- Collagen is synthesised as procollagen by fibroblasts intracellularly. After translation of mRNA of collagen in ribosomes, the polypeptide chains undergo posttranslational modifications in the form of hydroxylation and glycosylation.

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341. The most abundant aminoacid of collagen is -

a) Glycine

b) Proline

c) Lysine

d) Tryptophan

Correct Answer - A
Ans. is 'a' i.e., Glycine

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342. Folds in collagen are due to-

a) Glycine

b) Proline

c) Hydroxyproline

d) Lysine

Correct Answer - A:B

Ans. is `b > a' i.e., Proline > Glycine *[Ref Essentials of biochemisty p. 868]*

- Two amino acids are involved in producing folds in collagen : proline and glycine.
- In order to form a triple-helix a polypeptide chain (a-chain) must contain glycine as every third residue in the sequence.
- This is because only the glycine is small enough to be accommodated in the limited space available down the central core of the triple helix. Each turn of polypeptide chain (a-chain) contains three amino acid residues, and glycine (Gly) is present at every third position.
- Thus glycine constitutes 33% of the total amino acid residues. The repeating amino acid residues, represented as (Gly-X-Y)n, is an absolute requirement for formation of triple helix. X and Y can be any amino acids, but most of the time Xis proline (10% of the total amino acid residues) and most of the time Y is hydroxyproline. Other important amino acids found in collagen are lysine and hydroxylysine.

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343. Heme synthesis requires

a) Ferrous iron

b) Glycine

c) Succhyl CoA

d) All

Correct Answer - D

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344. Heme is which porphyrin ?

a) Type I

b) Type II

c) Type III

d) Type IV

Correct Answer - C
Ans. is 'c' i.e., Type III

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345. Gerhardt's test is used to detect ?

a) Reducing sugar

b) Ketone body

c) Protein

d) Blood

Correct Answer - B

Ans. is 'b' i.e., Ketone body

- Gerhardt's test is a test used to detect acetoacetate in urine (acetone and (3 hydroxybutyrate do not answer this test).
- Reagents used for Gerhardt's test include Concentrated nitric acid and 10% Ferric chloride

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346. Genetically mediated VLDL overproduction is a feature of all except ?

a) Familial combined hyperlipidemia

b) Hypoapobetalipoproteinemia

c) Familial dyslipidemic hypertension

d) LDL subclass B

Correct Answer - B

Ans. is 'b' i.e., Hypoapobetalipoproteinemia *[Ref Essentials of Biochemistry* p. *712]*

- Familial combined hyperlipidemia or Type lib Familial hyperlipoproteinemia is characterised by genetically determined overproduction of triglyceride rich VLDL (VLDL 1) and small dense LDL particles.
- It is the most commonly inherited disorder. Please remember Acquired combined hyperlipidemia with same features is caused by metabolic syndrome or insulin resistance.
- Hyperapobetalipoproteinemia is characterized by an increased number of small, dense LDL particles and an elevated LDL-B level with normal or borderline high LDL-C levels. Patients with Hyperapobetalipoproteinemia may have normal or high triglycerides.
- Hyperapobetalipoproteinemiahas been found to be the most common phenotype (34%) associated with premature CAD ;Hyperapobetalipoproteinemia with hypertriglyceridemiais found to be even more strongly associated with CAD than Hyperapobetalipoproteinemia with normal triglycerides.

347. Abetalipoproteinemia affects ?

a) Retinal pigment epithelium

b) Optic nerve

c) Occipital cortex

d) Bipolar neurons

Correct Answer - A

Ans. is 'a' i.e., Retinal pigment epithelium

- Abetalipoproteinemia or Bassen-Kornzweig syndrome is caused by a defect of Microsomal Triglyceride Transfer Protein (MTTP).
- In abetalipoproteinemia, both chylomicron and VLDL formation get affected.
- As a result, fat absorption is affected and the affected child presents with steatorrhea in the first few months of life.
- All fat soluble vitamin absorption also get affected. Hence Vitamin A, D, E and K deficiency is expected, however Vitamin E deficiency is found to have profound effects.
- Vitamin E deficiency presents as retinitis pigmentosa and subacute combined degeneration.
- Other features of abetalipoproteinemia are acanthocytes (star shaped RBCs in peripheral smear caused because the lipid composition of RBC membrane gets affected), hypocholesterolemia.
- Treatment involves vitamin E administration.

348. Synthetic oxygen carrier is ?

a) 2,4 dinitrophenol

b) Chloflurocarbon

c) Perflurocarbon

d) 1 fluro 2,4 dinitrophenol

Correct Answer - B

Ans. is 'b' i.e., Chloflurocarbon

- Blood doping is a form of fraudulent increase in the oxygen carrying capacity of a person, widely used to improve the aerobic capacity of athletes
- This is done by various methods
- Autologous blood transfusion
- Homologous blood transfusion
- Erythropoietin or Continuous Erythropoietin Receptor Activator

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349. Pepsinogen is activated by ?

a) Enterokinase

b) Enteropeptidase

c) H^+

d) Trypsin

Correct Answer - C
Ans. is c i.e.,H^+
Pepsin is secreted by chief cells of stomach in an inactive (zymogen) form called pepsinogen.
Acid (IF) in lumen of stomach converts pepsinogen to active pepsin.
Pepsin once formed also attacks pepsinogen producing more pepsin molecules by autocatalysis.

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350. Which of the following accumulates in maple syrup urine disease

a) Leucine

b) Valine

c) Isoleucine

d) All

Correct Answer - D
Ans. is `d' i.e., All
Maple syrup urine disease (MSUD) or branched-chain ketoaciduria
* It is an inborn error of metabolism of branched-chain amino acids *valine, leucine* and *isoleucine.*
* It is due to deficiency of an enzyme that catalyzes the second reaction in these amino acids metabolism i.e. **branched chain-a keto** acid dehydrogenase which catalyzes the decarboxylation of branched-chain amino acids.
* As a result, the branched-chain amino acids, leucine, isoleucine and valine, and their a-keto acids accumulate in the blood, urine, and CSF.
* There is a characteristic maple syrup odour to the urine.
* In maple syrup urine disease there is the excretion of branched-chain amino acids (isoleucine, *leucine,* valine) and their keto acids (α-keto β-methyl valerate, α-ketoisocaproate, α-ketoisovalerate) in the urine.

351. Heme is synthesized from ?

a) Lysine + succinyl CoA

b) Glycine + succinyl CoA

c) Arginine + Malonyl CoA

d) Glycine + Malonyl CoA

Correct Answer - B
Ans. B. Glycine + succinyl CoA
Organelle: Partly cytoplasmic and partly mitochondrial
Starting materials: Succinyl CoA and Glycine

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352. Glycemic index is defined as:

a) Glucose control in last 3 months

b) Measure of the change in the blood glucose following ingestion of proteins

c) Measure of the change in the blood glucose following ingestion of carbohydrate

d) Measure of the change in the blood glucose following ingestion of fats.

Correct Answer - C
The Glycemic index (GI) of a carbohydrate containing food is a measure of the change in the blood glucose following its ingestion

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353. True about coproporphyrin I and coproporphyrin III is -

a) Coproporphyrin I is excreted in urine

b) Coproporphyrin III is excreted in bile

c) In Dubin Johnson Syndrome, Coproporphyrin I in urine is 80% of the total coproporphyrin

d) In Dubin Johnson Syndrome, total coproporphyrin levels is elevated

Correct Answer - C

Ans. is 'c' i.e., In Dubin Johnson Syndrome, Coproporphyrin I in urine is 80% of the total coproporphyrin

- Coproporphyrins are intermediates of heme synthesis
- Normally coproporphyrin I is excreted in bile and is lost in feces
- Coproporphyrin III is excreted in urine
- Hence in normal urine Coproporphyrin I is 25% of total coproporphyrin levels in urine
- Dubin Johson syndrome, is a form of conjugated hyperbilirubinemia and is caused by a defect of Multi Drug Resistant Protein 2 **(MRP-2),** which is responsible for secreting bile components (conjugated bile pigments) from hepatocytes into biliary canaliculi.
- In this disorder, the ratio of Coproporphyrin I : Coproporphyrin III is reversed and coproporhyrin I is more than 80% of the total Coproporphyrin levels. But the total coproporphyrin levels is normal. Possible mechanism is Coproporphyrin I is secreted into bile through MRP-2.

354. Vitamin A deficiency leads to metaplasia of?

a) Squamous epithelium

b) Columnar epithelium

c) Both

d) None

Correct Answer - A

Answer- A. Squamous metaplasia

- It occurs most frequently in respiratory tract as a result of chronic irritation by cigarette smoking. The columnar epithelium is replaced by squamous epithelium. This squamous metaplasia represents an attempt by the host to repair or prepare an epithelial tissue that has been damaged by environmental toxicants with a more resistant tissue.
- Squamous metaplasia is also encountered in other location such as pancreatic duct (Vit A deficiency, stones in
- pancreatic duct), gall bladder (gall stones), urinary bladder (bladder calculi, Schistosomiasis), and in endocervix.
- Though the metaplasia is reversible, if the influences that predispose to metaplasia is persistent, malignant transformation may occur in metaplastic epithelium.

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355. Physiological hyperplasia and hypertrophy are seen simultaneously in -

a) Uterus in pregnancy

b) Skeletal muscle in atheleteas

c) Breast at puberty

d) a and c

Correct Answer - D

Ans. is 'a > c' i.e., Uterus in pregnancy > Breast at puberty

Physiological hypertrophy and hyperplasia

* Examples of physiologically increased growth of tissues include : -

- Skeletal muscle hypertrophy in atheletes, both in the skeletal muscle of limbs (as a response to increased muscle activity) and in left ventricle of heart (as a response to sustained outflow resistance).
- Hyperplasia of bone marrow cells producing red blood cells in individuals living at high altitude; this is stimulated by increased production of the erythropoietin.
- Hyperplasia of breast at puberty, and in pregnancy and lactation, under the influence of estrogen, progesterone, prolactin and human placental lactogen.
- Hypertrophy and hyperplasia of uterine smooth muscle in pregnancy, stimulated by estrogen.
- Thyroid hyperplasia as a consequence of the increased metabolic demand of puberty and pregnancy. For option 'c'
- "Hormonal hyperplasia is well illustrated by the proliferation of the glandular epithelium of the female breast at puberty and during pregnancy, usually accompanied by enlargement (hypertrophy) of the glandular epithelial cell" -

* However, I am not sure about this statement of Robbin's, as no other text book has mentioned that breast at puberty undergo both hyperplasia and hypertrophy.

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356. Example of coagulative necrosis is -

a) Acute tubular necrosis

b) Stroke

c) Malignant hypertension

d) Acute pancreatitis

Correct Answer - A

Answer- A. Acute tubular necrosis

The causes of coagulative necrosis are :

1. Coagulative necrosis is most frequently caused by sudden cessation of blood flow (ischemia) in solid organssuch as heart (MI), Kidney (ATN), Liver, adrenal gland, spleen. Amongst solid organs brain is the only exception, i.e., it is the only solid organ in which ischemia leads to liquefactive necrosis and not coagulative necrosis.
2. Toxic products of certain bacteria, as in calf diphtheria, necrophorus enteritis and other forms necrobacillosis.
3. Certain locally acting poisons, e.g., mercuric chloride.
4. Mild burns (thermal injury), whether produced by heat, electricity, or x-rays.
5. Zenker's degeneration necrosis of muscle. It occurs in typhoid. Rectus and diaphragm are the usual muscles affected

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357. Dystrophic calcification is seen in ?

a) Milk alkali syndrome

b) Atheromatous plaque

c) Hyperparathyroidism

d) Vitamin A intoxication

Correct Answer - B

Ans. is 'b' i.e., Atheromatous plaque

Dystrophic calcification

***** When pathological calcification takes place *in dead, dying or degenerated tissue,* it is called dystrophic calcification. o Calcium metabolism is not altered and *serum calcium level is normal.*

Dystrophic calcification in dead tissues	Dystrophic calcification in degenerated tissues
1.In caseous necrosis of tuberculosis (most common which may be in lymph nodes)	1. Atheromatous plague
2.Chronic abscess in liquifactive necrosis	2. Monkeberg's sclerosis
3.Fungal granuloma	3. Psommama bodies
4.Infarct	4. Dens old scars
5.Thrombi	5. Senile degenrated changes such as in costal cartilage, tracheal, bronchial rings, Pineal gland in brain.
6.Haematomas	6. Heart valves damaged by rheumatic fever.
7.Dead parasites-Cystecercosis/Toxoplasma Hydatid/Schistosoma	
8.In fat necrosis of breast & other tissues	

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How does calcification occurs in these site with normal serum calcium ?

* Calcification of dead and dying cells and tissues is a common finding in human pathologic conditions.
* Denatured proteins in dead or irreversible damaged tissues preferentially bind phosphate ions.
* Phosphate ions react with calcium ions to form a precipitate or calcium phosphate.
* Thus, necrotic tissue serves as a calcium sink.

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358. What is the first sign of injury?

a) Mitochondrial dysfunction

b) Membrane damage

c) Diminished ATP

d) Release of lysosomal enzymes

Correct Answer - A
Answer- A. Mitochondrial dysfunction
hypoxia is the most common cause of cell injury.
Oxygen is an important requirement of mitochondria for the formation of ATP; therefore, hypoxia will result in the earliest involvement of mitochondria resulting in decreased formation of ATP.
Diminished ATP constitutes the critical mechanism of the cellular injury which leads to:
a. Intracellular accumulation of Ca+2
b. Mitochondrial dysfunction
c. Membrane damage
d. Release of lysosomal (hydrolytic) enzymes

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359. Blebs are found in which type of injury?

a) Reversible

b) Irreversible

c) Both

d) None

Correct Answer - A
Answer- A. Reversible
Pathological features of reversible cell injury are : Cellular swelling (earliest); loss of microvilli; cytoplasmic membrane blebs; ER swelling; Myeline figures; detachment of ribosome from ER; cytoplasmic (lipid) vacuole; clumping of chromatin.

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360. Hydropic change is due to -

a) Accumulation of water intracellularly

b) Fat accumulation intracellularly

c) Lysozyme degeneration

d) Glycogen accumulation intracellularly

Correct Answer - A
Answer- A> Accumulation of water intracellulary
Hydropic change (abominoid degeneration, hydropic degeneration, parenchymatous degeneration, cloudy swelling) of a cell is degenerative change, in which the cells swell due to injury to the membrane affecting Ionic transfer, causing the cytoplasm to appear cloudy and water to accumulate between the cells, with resultant Swelling of the tissue.
Cellular swelling (hydropic change) is the earliest change in cell injury (reversible).

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361. Nuclei are arranged at the cell periphery in which type of cell?

a) Langhans giant cell

b) Merkel cells

c) NK cells

d) Neutrophils

Correct Answer - A

Answer- A. Langhans giant cell

- Peripheral nuclei are seen in Langhans type giant cells
- Langhans giant cells are large cells found in granulomatous conditions.
- They are formed by the fusion of epithelioid cells (macrophages) and contain nuclei arranged in a horseshoe-shaped pattern in the cell periphery.
- These cells contain 3-5 nuclei. Nuclei are arranged around the periphery in the form of a horseshoe. These cells may also act as precursors of foreign body giant cells. These cells are seen in TB & sarcoidosis.

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362. Not true about VEGF is -

a) Highly specific for endothelium

b) Hypoxia potentiates its expression

c) Inhibits angiogenesis

d) Helps in tumor metastasis

Correct Answer - C

Answer- C. Inhibits angiogenesis

- Vascular endothelial growth factor (VEGF) is a potent angiogenic factor and was first described as an essential growth factor for vascular endothelial cells.
- VEGF is up-regulated in many tumors and its contribution to tumor angiogenesis is well defined.
- In addition to endothelial cells, VEGF receptors are expressed on numerous non-endothelial cells including tumor cells.
- Binds to endo-specific receptors Flt-1 and Flk-1 (of the tyrosine kinase family).
- Expression of VEGF potentiated by hypoxia and inactivation of p53.
- The two most important angiogenic factors in a tumor are VEGF and basic fibroblast growth factor (bFGF), thus helping in tumor metastasis.

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363. Endothelial molecule involved in rolling is -

a) ICAM 1

b) VCAM 1

c) CD 31

d) CD 34

Correct Answer - D
Answer- D. CD 34
Endothelial molecule- Major Role
P-selectin- Rolling
E-selectin- Rolling and adhesion
GlyCam- 1, CD34- Rolling
ICAM-1 (Immunoglobulin family)- Adhesion, arrest, transmigration
VCAM-1 (Immunoglobulin family)- Adhesion
PECAM-1 (CD-31)- Diapedesis (transmigration)

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364. Acute phase reactants are stimulated by -

a) IL-6

b) IL-1

c) TNF-a

d) All of the above

Correct Answer - D
Answer- D. All of the above
In response to injury, local inflammatory cells (neutrophil granulocytes and macrophages) secrete a number of cytokines into the bloodstream, most notable of which are the interleukins IL6 and IL8, and TNFa. The liver responds by producing a large number of acute-phase reactants.

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365. Vasodilatation following endothelial damage is due to ?

a) Histamine

b) IL-2

c) TGF-3

d) FGF

Correct Answer - A
Answer- A. Histamine
Vasodilatation :- Histamine, prostaglandins (PG D2, PGE2), prostacyclins, serotonin, Nitric oxide, bradykinin

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366. Lymphotactin is which type of chemokine?

a) C

b) C- C

c) C-X-C

d) C-X3-C

Correct Answer - C
Answer- C. C-X-C
C - chemokines :- They are specific for lymphocytes, e.g. lymphotactin.

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367. Primary granules contain which enzyme?

a) Myeloperoxidase

b) Hydrolases

c) Lactoferrin

d) Phospholipase A2

Correct Answer - A
Answer- A. Myeloperoxidase
Myeloperoxidase
Lysozyme
Acid hydrolases
Elasases
Nonspecific collegenase
Bacterial permeability protein
Defensin (BPI)
Cathepsin G
Phospholipase A2

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368. Active compound secreted by neutrophills against pathogen is known as?

a) Major basic protein

b) Myeloperoxidase

c) Hydrolase

d) Proteoglycans

Correct Answer - B

Answer- B. Myeloperoxidase

The azurophilic granules of neutrophils contain the enzyme myeloperoxidase (MPO), which In the presence of a halide such as Cl-, convertes H202 to hypochlorite (HoC1).

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369. Peroxidase enzyme found in neutrophills is used for -

a) Macrophage activation

b) Chemotactic agent

c) Microbial killing

d) Vasodilatation

Correct Answer - C
Answer- C. Microbial killing
Peroxidase (myeloperoxidase) is involved in phagocytosis (microbial killing).

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370. Which one of the following statements is correct regarding chronic granulomatous disease ?

a) It is an autosomal dominant disease

b) It is characterized by abnormal bacterial phagocytosis

c) Recurrent streptococcal infections are usual in this disease

d) Nitrobluetetrazolium test is useful for screening

Correct Answer - D

Ans. is 'd' i.e., Nitrobluetetrazolium test is useful for screening

Leukocytes from the patients of chronic granulomatous disease fail to reduce nitroblue tetrazolium (NBT) during phagocytosis. This property has been used as a screening method (NBT test) for the diagnosis of chronic granulomatous disease.

Chronic granulomatous disease (CGD)

- It is a group of disorders of granulocyte and monocyte oxidative metabolism.
- Inheritance
- *X-linked* (Most common)
- *Autosomal recessive*
- Phagocytosis *is* normal but leukocytes do not undergo degranulation following phagocytosis.
- The diminished H202 production appears to be the major reason for defective bactericidal defect.
- Mutation in the genes for the four proteins that assemble at the plasma membrane account for all patients with CGD:
- Two proteins form the heterodimer cytochrome b - 558 in the plasma membrane.

- Two other proteins interact with cytochrome after cell activation to form *NADPH oxidase* required for Hydrogen peroxide production.
- *The bacteria involved in recurrent infections are catalase positive pyogenic pathogens such as staphylococci and coliforms.* Catalase negative pathogens such as streptococci and pneumococci are handled normally.
- There is excessive inflammation with granulomas formation.

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371. Most common cause of chronic granulomatous disease in children is:

a) Myeloperoxidase deficiency

b) Defective phagocytosis

c) Defective H_2O_2 production

d) Job's disease

Correct Answer - C

Answer is C (Defective H_2O_2 production)

Chronic granulomatous disease is a 'disorder' of microbial killing' characterized by decreased ability of neutrophils to produce H4)-Q

Chronic granulomatous disease is a 'disorder' of microbial killing' chara
decreased ability of neutrophils to produce H,O_2.[Q] Patients, here becor
susceptible to disease caused by organisms that produce `catalase', wl
the small amount of H2O, present in these cells and leads to failure of b
killing.

The disease is called so, because granulomas, are formed in various tis
second line defence against organisms, that normally would be remove
acute inflammatory response.

Manifestations:

Recurrent infections with which catalase +ve Pyogenic bacteria e.g. sta
[Q]

- catalase negative bacteria e.g. streptococcus, Pneumococcus are ofte
normally.[Q]

Normal humoral immune response[?] but

Defective killing process: Leucocytes are unable to kill bacteria after ph
the major reason being decreased production of $H\text{-}O_2$.[Q]

Screening method:

NBT test: Nitroblue retrazolium dye is not reduced by neutrophils in vitr

372. Delayed umbilical cord detachment leukocytosis is seen in?

a) Leukocyte adhesion deficiency

b) Chronic granulomatous disease

c) Severe combined immunodeficiency

d) None of the above

Correct Answer - A

Answer- A. Leukocyte adhesion deficiency

- Leukocyte adhesion deficiency type 1 is a disorder that causes the immune system to malfunction, resulting in a form of immunodeficiency
- One of the first signs of leukocyte adhesion deficiency type 1 is a delay in the detachment of the umbilical cord stump after birth. In newborns, the stump normally falls off within the first two weeks of life; but, in infants with leukocyte adhesion deficiency type 1, this separation usually occurs three weeks or later. Also, affected infants often have inflammation of the umbilical cord stump (omphalitis) due to a bacterial infection.
- It's due to the absence of CD 18 antigen that's necessary for the formation of integrins, the substances that are responsible for the second step of leukocyte migration: adhesion. Because the leukocytes cannot efficiently reach the site of insult, they cannot engulf the offending substance, and no pus will be evident. Also, as a compensatory mechanism, there may be excessive leukocytosis.

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373. Decrease in plasma osmotic pressure is cause of edema in?

a) CHF

b) DVT

c) Nephrotic syndrome

d) None

Correct Answer - C
Answer- C. Nephrotic syndrome
Decreased plasma osmotic pressure of capillaries : It causes decreases in inward drivingforce. It results from Hypoproteinemia. When total plasma protein is below 5 gm/dl (normal 6-8 gm/d1) or albumin is below 2.5 gm/dl (normal 3.5-5 gm/dl) edema takes place. Conditions causing hypoproteinemia are nephrotic syndrome, liver cirrhosis, protein losing enteropathy, and PEM.

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374. Normal time taken for scar formation after injury is?

a) 2 weeks

b) 3 weeks

c) 4 weeks

d) 5 weeks

Correct Answer - C

Answer- C. 4 weeks

Immediately after incision : Incision is filled with blood clot containing fibin and blood cells (including), dehydration of surface clot forms scab on surface.

Within 24 hours : Neutrophils appear at the margin of wound, which is filled with blood clot.

24-48 hours : Epithelial cells move from wound edges and fuse in the midline beneath the surface scab, producing a continuous but thin epithelium layer that closes the wound.

Day 3 : Neutrophils are replaced by macrophages, granulation tissue appears, collagen fibers are present in the margin but do not bridge the incision.

Day 5 : Abundant granulation tissue, maximum neovascularization, abundant collagen which bridges the incision, the epidermis recovers its normal thickness.

2nd week : Diappearance of leukocytes and edema, presence of fibroblasts (derived from local mesenchyme) and maximum collagen.

End of 1 month : There is scar which is made up of cellular connective tissue devoid of inflammatory infiltrate covered now by intact epidermis. There is replacement of collagen type III with

collagen type I.

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375. Which type of healing occurs in an incisional wound with infection?

a) Primary

b) Delayed primary

c) Secondary

d) Tertiary

Correct Answer - C
Answer- C. Secondary
Its produced by sharp cutting instruments-
knife,razor,blade,swords,chopper,axe etc.
Secondary healing occurs in an incisional wound with infection.

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376. **All of the following cell types undergo cell division, EXCEPT:**

a) Pericyte

b) Cardiac muscle cell

c) Smooth muscle cell

d) Satellite cell of skeletal muscle

Correct Answer - B
Myocyte cell division in the human heart ceases a few weeks after birth. Thereafter, enlargement of the heart is as a result of cell hypertrophy or the laying down of collagen in the extracellular space. DNA turnover is almost undetectable except in pathologic states. Approximately 20% of myocytes in the human heart have two nuclei, so that cell separation, rather than mitosis, could bring about a small increase in the total cell number.
Ref: Francis G.S., Tang W., Walsh R.A. (2011). Chapter 26. Pathophysiology of Heart Failure. In V. Fuster, R.A. Walsh, R.A. Harrington (Eds), *Hurst's The Heart,* 13e.

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377. Gene for embryogenic stem cell is -

a) Oct-4

b) Nanog

c) GJA I

d) All of the above

Correct Answer - D
Answer- D. All of the above
A common subset of 92 genes was identified that included Nanog, GTCM-1, connexin 43 (GJA1), oct-4, and TDGF1 (cripto)."

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378. Complement mediated hypersensitivity reaction is?

a) Type -1 hypersensitivity

b) Type -2 hypersensitivity

c) Type -4 hypersensitivity

d) None

Correct Answer - B
Answer- B. Type -2 hypersensitivity
Type II reactions (Antibody mediated) → Involve immunoglobulin G or Immunoglobulin M bound to cell surface antigen, with subsequent complement fixation.

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379. T-cell mediated disease is?

a) Asthma

b) Myasthenia gravis

c) SLE

d) Sarcoidosis

Correct Answer - D

Answer- D. Sarcoidosis

Type I (IgE mediated)

- Eczema
- Hay fever
- Asthma
- Atopy
- Urticaria
- Anaphylactic shock
- Acute dermatitis
- Theobald smith phenomenon
- Prausnitz Kusnter (PK) reaction
- Casonis test
- Schultz-Dale phenomenon

Type II (IgG, IgM and complement mediated)

- Blood transfusion reactions
- Erythroblastosis fetalis
- Autoimmune hemolytic anemia or thrombocytopenia or agrnulocytosis4
- Pemphigus vulgaris
- Good pasture syndrome
- Bullous pemphigoid
- Pernicious anemia

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- Acute rheumatic fever
- Diabetes mellitus
- Graves disease
- Myasthenia gravis

Type III (IgG, IgM, complement and leucocyte mediated)

- Local-Arthus reaction
- Systemic-serum sickness
- Schick test
- Polyarteritis nodosa (PAN)
- Rheumatoid arthritis
- SLE
- Acute viral hepatitis
- Penicillamine toxicity
- Hyperacute graft rejection

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380. Type 4 hypersensitivity reaction to TB antigen is similar to which of the following?

a) Serum sickness

b) Asthma

c) Myasthenia gravis

d) Temporal arteritis

Correct Answer - D
Answer- D. Temporal arteritis
Type IV (T-Cell mediated)

- Tuberculin test
- Lepromin test
- Sarcoidosis
- Tuberculosis
- Contact dermatitis
- Granulomatous inflammation
- Type I lepra reaction
- Patch test
- Temporal arteritis
- Jones mote reaction (cutaneous basophilic HSN)
- Graft rejection
- Fairleys test
- Frie's test

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381. Non IgE mediated anaphylactic reaction includes -

a) Ig G

b) Ig M

c) Compliments

d) All of the above

Correct Answer - D
Answer- D. All of the above
Cytotoxic reactions can also cause anaphylaxis, via complement activation. Antibodies (IgG and IgM) against red blood cells, as occurs in a mismatched blood transfusion reaction, activate complement. This reaction causes agglutination and lysis of red blood cells and perturbation of mast cells resulting in anaphylaxis

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382. True about MHC-class II -

a) Not involved in innate immunity

b) Cytotoxic T-cell involved

c) Present in nucleated cells

d) All

Correct Answer - A
Ans. is 'a' i.e., NOT involved in innate immunity
o MHC I and II are part of adaptive immunity. A major function of the MHC molecule is to present the antigen to T cell that is part of adaptive immunity.
Cytotoxic T cells are MHC - class I restricted.
MHC class II complex is found only on cells of the immune system (class I is found on all nucleated cells and platelets.)
The antigens binding with MHC II molecule are presented to CD4+ T cells. As discussed earlier, helper T cells/CD4 T cells are MHC II-restricted.
B cells have both MHC class I and II complexes.

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383. MHC1 is involved in?

a) Tumor lysis

b) Mixed leukocyte reaction

c) Autoimmune disease susceptibility

d) All of the above

Correct Answer - A
Answer- A. Tumor lysis
MHC class I molecules are present on all nucleated cells, all virus-infected cells can be detected and eliminated by CD8+Cytotoxic T lymphocytes.
MHC class I is responsible for graft rejection and cell-mediated cytolysis of viral infected or tumor cells.

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384. CD4 is associated with HLA?

a) HLA 1

b) HLA 2

c) HLA 3

d) All of the above

Correct Answer - B
Answer- B. HLA 2
MHC-II recognizes exogenous antigen (extracellular microbes, soluble proteins) and present it to CD4 helper T cells (MHC-II restricted).
MHC class I present antigen to cytotoxic CD-8 T cells (MHC-I restricted).

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385. Memory cells are:

September 2004

a) Basophils

b) Eosinophils

c) Lymphocytes

d) Neutrophils

Correct Answer - C
Ans. C i.e. Lymphocytes

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386. Which of the following interleukin is secreted by T helper 2 cells?

a) IL 11

b) IL 7

c) IL 1

d) IL 13

Correct Answer - D

Ans. is 'd' i.e., IL 13

A) T helper - 1 (T_F,') secretes 4 IL-2 and interferon - y

B) T helper - 2 (T_0^2) secretes -> IL-4, IL-5, IL-6, IL-13

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387. All are true about Toll like receptors except?

a) Recognize microbial molecules

b) Activation of immune system

c) Regulation of calcium channel

d) Activation of transcription factors

Correct Answer - C

Answer- C. Regulation of calcium channel

- Toll-like receptors (TLRs) are microbial sensors that are named for the founding member called Toll, which was discovered in Drosophila.
- There are ten mammalian TLRs, which recognize products of bacteria (such as endotoxin and bacterial DNA), viruses (such as double-stranded RNA), and other pathogens (Fig. 2–3, A).
- TLRs are located in plasma membranes and endosomes, so they can detect extracellular and ingested microbes.
- They are complemented by cytoplasmic and membrane molecules, from several other families, that also recognize microbial products.
- TLRs and the other receptors recognize products of different types of microbes and thus provide defense against essentially all classes of infectious pathogens.
- Recognition of microbes by these receptors activates transcription factors that stimulate the production of several secreted and membrane proteins.
- These proteins include mediators of inflammation, antiviral cytokines (interferons), and proteins that promote lymphocyte activation and even more potent immune responses.

388. Toll like receptors are seen on?

a) Macrophages

b) Natural killer cells

c) Endothelial cells

d) All of the above

Correct Answer - D
Answer-D. All of the above

- The Toll-like receptors are rnembrane proteins that recognize avariety of microbe-derived molecules and stimulate innate immune responses against the microbes.
- The Toll-like receptors are expressed on many different cell types that participate in innate immune responses including ,macrophages, dendritic cells, neutrophils, NKs cells, mucosal epithelial cells and endothelial cells.

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389. The most common organ to be involved in the acute phase of Graft vs host disease is?

a) Bone marrow

b) Skin

c) Liver

d) Gut

Correct Answer - B

Answer- B. Skin

Acute Graft vs host disease (occurring days to weeks after transplantation) causes epithelial cell necrosis in three principal target organs: liver, skin, and gut. Destruction of small bile ducts gives rise to jaundice, and mucosal ulceration of the gut results in bloody diarrhea. Cutaneous involvement is manifested by a generalized(maculopapular) rash.

Histological findings are-

1. Perivascular mononuclear infiltrates.
2. Vacuolar degradation of dermo-epidermal junction.
3. Dyskeratotic cells or eosinophilic bodies in the epidermis.
4. Epidermolysis.
5. Denudation of epidermis (separation of the epidermis from the dermis).

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390. Normal value of CD4:CD8 ratio is -

a) 0.5

b) 1

c) 1.5

d) 2

Correct Answer - D
Answer- D. 2
A normal CD4/CD8 ratio is 2.0, with CD4 lymphocytes equal to or greater than 400/mm3 and CD8 lymphocytes equal to 200 to 800/mm3.

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391. **More than 90% patients of CREST syndrome with the limited cutaneous form of this disorder make which of the following autoantibodies?**

a) Anti-centromere

b) Anti-DNA topoisomerase I

c) Anti-double-stranded DNA

d) Anti-Golgi

Correct Answer - A

All forms of scleroderma are thought to have a strong autoimmune component, and glucocorticoids and azathioprine are used to suppress the inflammatory complications of scleroderma.
(Other drugs that can be used in therapy include penicillamine, which inhibits collagen cross-linking, NSAIDS for pain, and ACE inhibitors to protect the kidney if hypertension or renal damage occurs).
The anti-centromere antibody is quite specific for CREST syndrome (96% of cases), and is only seen in a minority of patients with diffuse scleroderma (mainly those with Raynaud's phenomenon) and rarely in systemic lupus erythematosus and mixed connective tissue disease.
Also know:

- **Anti-DNA topoisomerase I** , also called anti-Scl-70 occurs commonly (64-75%) in diffuse scleroderma, but only rarely in CREST syndrome.
- **Anti-double-stranded DNA** is fairly specific for systemic lupus erythematosus, although it only occurs in 50-60% of lupus cases.
- **Anti-Golgi antibodies** are seen most often in systemic lupus erythematosus and Sjögren syndrome.

Ref: Hellmann D.B., Imboden Jr. J.B. (2013). Chapter 20. Musculoskeletal & Immunologic Disorders. In M.A. Papadakis, S.J. McPhee, M.W. Rabow (Eds),CURRENT Medical Diagnosis & Treatment 2013.

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392. Anti Jo-1 antibodies are a feature associated with?

a) SLE

b) Systemic sclerosis

c) Polymyositis

d) Rheumatoid arthritis

Correct Answer - C
Answer- C. Polymyositis
Anti-Jo-1 antibody is a myositis specific autoantibody most commonly found in patients with idiopathic inflammatory myopathies (UM).

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393. HLA marker associated with diabetes mellitus type 1 is -

a) B 7

b) DR 4

c) DQ 3

d) DQ 4

Correct Answer - B
Answer- B. DR 4
HLA associated with DM1 are DR3, DR4, DR8, DQ8.

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394. Expression of a gene is known as?

a) Genotype

b) Phenotype

c) Genome

d) Morphology

Correct Answer - B
Answer- B. Phenotype
The genotype (The genetic makeup of an individual) of an organism is the inherited map it carries within its genetic code.
The genotype is the part (DNA sequence) of the genetic makeup of a cell. Genotype is one of three factors that determine phenotype, the other two being inherited epigenetic factors, and non-inherited environmental factors.

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395. Group-D chromosome is?

a) Chromosome 3

b) Chromosome 6

c) Chromosome 12

d) Chromosome 15

Correct Answer - D
Answer- D. Chromosome 15
13-15- Six chromosomes slightly smaller than the C group with the kinetochores in a near terminal position.

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396. Acute intermittent porphyria is associated with which type of inheritance?

a) Autosomal dominant

b) Autosomal recessive

c) X-linked dominant

d) X-linked recessive

Correct Answer - A
Answer- A. Autosomal dominant
Metabolic
Familial hypercho-lesterolemia
Acute intermittent porphyria

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397. Inheritance associated with congenital adrenal hyperplasia -

a) AR

b) AD

c) XR

d) XD

Correct Answer - A
Answer- A. AR
Endocrine-

- Congenital adrenal hyperplasia
- Albinism

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398. Inheritance associated with fragile X-syndrome is-

a) Autosomal dominant

b) Autosomal recessive

c) X-linked dominant

d) X-linked recessive

Correct Answer - C
Answer- C. X-linked dominant
'None > c' i.e., X-linked dominant
The unstable triplet is transmitted in an X-linked inheritance but the probabilities of different phenotypes are far from traditional X-linked inheritance.

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399. HOX gene is associated with

a) Cranio-caudal development

b) Brain development

c) Teeth formation

d) All of the above

Correct Answer - A
Answer- A. Cranio-caudal development
HOX genes (a subset of homeotic genes) are a group of related genes that control the body plan of an embryo along the cranio¬caudal (head-tail) axis.

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400. Chromosome for ABO gene is?

a) 9q

b) 10p

c) 11 q

d) 12p

Correct Answer - A
Answer- A. 9q
The ABO gene (Histo-blood group ABO system transferase enzyme) resides on chromosome 9 at the band 9q34.2.
Histo-blood group ABO system transferase is an enzyme with glycosyltransferase activity, which is encoded by the *ABO* gene in humans. It is ubiquitously expressed in many tissues and cell types.

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401. Barr body is found in the following phase of the cell cycle:

a) Interphase

b) Metaphase

c) GI phase

d) Telophase

Correct Answer - A
A i.e. Interphase
The inactive X can be seen in the interphase nucleus as a darkly staining small mass in contact with the nuclear membrane known as the Barr body or X chromatin. Barr body is the inactivated X chromosome. In non dividing interphase cells it remains tightly coiled and can be seen as a dark staining body within the nucleus.

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402. Trinucleotide sequence associated with spino-cerebellar ataxia is?

a) CTG

b) CUG

c) GGG

d) CAG

Correct Answer - D
Answer- D. CAG
Huntington's disease (CAG repeat),
Spinocerebellar ataxia (CAG repeat),
Friedreich ataxia (GAA repeat),
Fragile-X-syndrome (GGG or GCC repeat),
Dystrophia myotonica (CTG/CUG repeat)

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403. CA-125 is?

a) Mucin glycoprotein

b) Carcinoma transmigration antigen

c) Mucopolysaccharide

d) Lipid

Correct Answer - A

Answer- A. Mucin glycoprotein

* CA-125, which stands for “Cancer Antigen 125” also known as mucin 16 or MUC16 is a protein that in humans is encoded by the MUC16 which is a member of the mucin family glycoproteins.
* It is found in high amounts in the blood of patients with ovarian cancer.
* CA-125 is produced on the surface of cells and is released in the bloodstream.
* It is among the blood tests that may be ordered by a doctor if ovarian cancer is suspected.
* CA-125 is also elevated in cancers of endometrium, cervix, fallopian tubes, pancreas, breast, lung and colon.
* Non-neoplastic conditions causing elevation of CA-125 are pregnancy, menstruation, endometriosis, PID, abdominal TB, peritonitis and uterine fibroid.
* reference range: CA 125 is 0-35 units/mL (0-35 kU/L).

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404. Elevated CA-125 are seen in -

a) Abdominal TB

b) Ca cervix

c) Endometriosis

d) All

Correct Answer - D
Ans. is 'a' i.e.,Abdominal TB; 'b' i.e., Ca cervix; 'c' i.e., Endometriosis
Elevated level of CA-125 is seen in
* Epithelial ovarian Cancer
* Non ovarian tumors :- Cancers of endometrium, cervix, fallopian tubes, pancreas, breast, lung and colon.
* Non malignant conditions:- Pregnancy, mensturation, peritonitis, endometriosis, pelvic inflammatory disease (abdominal TB) and uterine fibroids.

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405. Li-fraumani syndrome occurs due to mutation in gene?

a) p53

b) p16

c) p41

d) p12

Correct Answer - A
Answer- A. p53
Li-Fraumeni syndrome is due to germ line mutation in p-53 gene.

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406. Following genetic counselling in a family for Familial polyposis coli (FPC) next screening test is

a) Flexible sigmoidoscopy

b) Colonoscopy

c) Occult blood in stools

d) APC gene

Correct Answer - D
Ans. is 'd' i.e. APC gene

- *Schwartz writes - "Flexible* sigmoidoscopy of first-degree relatives of FAP *(Familial adenomatous polyposis)* patients beginning at age 10 to 15 years has been the traditional mainstay of screening. *Today following genetic counselling, APC gene testing may be used to screen family members providing an APC mutation has been identified in a family member."*
- Familial adenomatous polyposis (FAP) is a *dominantly inherited* colon cancer syndrome due to germline mutations in the *adenomatous polyposis coli (APC) tumor suppressor gene* on chromosome 5.
- Patients with this syndrome develop hundreds to thousands of *adenomas* in the colon which if left untreated will eventually develop into *colon cancer.*
- Each of the FAP adenomas has lost the normal remaining allele of APC gene but has not yet accumulated the required additional mutations to generate fully malignant cells. In due course of time many of these adenomas acquire further genetic abnormalities and develop into fully malignant cancers. APC gene is thus considered to

be a *gatekeeper* for colon tumorigenesis.

- *The detection of APC gene mutation in family members of a FAP patient helps in making a definitive diagnosis before the development of polyps.*

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407. Most common tumor suppressor gene involved in cancer genesis is?

a) Rb

b) p53

c) p16

d) p73

Correct Answer - B
Answer- B. p53
p-53 is the most common target for genetic alteration in human tumors; A little over 50% of human tumors contain mutation in this gene.

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408. All are pre-malignant conditions except -

a) Anaplasia

b) Metaplasia

c) Hamartoma

d) Dysplasia

Correct Answer - C
A **precancerous condition** is a condition or lesion involving abnormal cells that are associated with an increased risk of developing into cancer. Clinically, precancerous conditions encompass a variety of conditions or lesions with an increased risk of developing into cancer.
Dysplasia is a broad term that refers to the abnormal development of cells within tissues or organs. It can lead to a wide range of conditions that involve enlarged tissue or pre-cancerous cells.
Anaplasia is a condition of cells with poor cellular differentiation, losing the morphological characteristics of mature cells and their orientation concerning each other and to endothelial cells. The term also refers to a group of morphological changes in a cell (nuclear pleomorphism, altered nuclear-cytoplasmic ratio, presence of nucleoli, high proliferation index) that point to a possible malignant transformation. Such loss of structural differentiation is especially seen in most, but not all, malignant neoplasms.
A hamartoma is a benign (noncancerous) tumorlike malformation made up of an abnormal mixture of cells and tissues found in areas of the body where growth occurs. It is considered a developmental error and can occur at several sites.
considering the above terms hamartoma is not a precancerous condition

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409. Soft wood exposure leads to -

a) Nasal adenocarcinoma

b) Skin cancer

c) Liver cancer

d) Bladder cancer

Correct Answer - A
Answer- A. Nasal adenocarcinoma
"There is little doubt that exposure to hard wood dusts (especially that of beech 6, oak) in the furniture industry, as well as some domestic softwood outside the industry, is associated with sino-nasal cancers. Among the neoplasias, nasal adenocarcinoma is the cancer most commonly found in wood workers."

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410. At which cell cycle checkpoint is the cell cycle halted if the cell's DNA is damaged?

a) G I - S

b) S - G2

c) G2 - M

d) GO - GI

Correct Answer - A:C

Answer- (A) G I - S (C) G2 - M

The S phase is the point of no return in the cell cycle, and before the cell makes the final commitment to replicate, the G ,/S checkpoint checks for DNA damage. If DNA damage is present, the DNA repair machinery and mechanisms that arrest the cell cycle are put in motion. This causes delay at G iS checkpoint.

This check point in used for the repair of the DNA which is damaged after its replication

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411. Malignancy associated with hypercalcemia:

a) Breast cancer

b) Small cell lung cancer

c) Non-small lung cancer

d) Prostate cancer

e) Multiple myeloma

Correct Answer - A:C:D:E

Answer- A,Breast cancer C,Non-small lung cancer D,Prostate cancer E,Multiple myeloma

- Lung carcinoma, breast carcinoma, and multlple myeloma account for more than 50% of all cases of malignancy-associated hypercalcemia.
- Gastrointestinal tumars and prostate carcinoma are less common causes of hypercalcemia.

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412. AFP is raised in-

a) Yolk sac tumor

b) Seminoma

c) Teratoma

d) a and c

Correct Answer - D

Ans. is 'a' i.e., Yolk sac tumor; 'c' i.e., teratoma

AFP is a glycoprotein *synthesized normally early in fetal life by yolk sac, fetal liver and fetal GIT. It is structurally and genetically related to albumin.*

AFP is raised in *liver cancer (hepatocellular carcinoma), lung carcinoma, pancreatic carcinoma,colon carcinoma, and non-seminoma germ cell tumor of testis/ovary* (yolk sac tumor/endodermal sinus tumor, *embryonal carcinoma, teratoma).*

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413. Immunohistochemical marker for sentinel node biopsy for breast carcinoma is?

a) Cytokeratin

b) Vimentin

c) Calretinin

d) CD45

Correct Answer - A
Answer- A. Cytokeratin
Cytokeratin - Carcinoma

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414. Scavenger receptors are for?

a) Oxidized LDL

b) Reduced LDL

c) HDL

d) VLDL

Correct Answer - A
Answer- A. Oxidized LDL
Oxidized LDL has following effects
1. Ingested by macrophages through the scavenger receptor, distinct from LDL receptors, thus forming foam cells.
2. Increases monocyte accumulation in lesions.
3. Stimulates release of growth factors and cytokines.
4. Is cytotoxic to smooth muscle cells and endothelial cells

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415. Causes of constrictive pericarditis is/are ?

a) T.B.

b) *SLE*

c) Brucellosis

d) a and b

Correct Answer - D
Ans. is 'a' i.e., T.B.; b' i.e., SLE
Causes of constrictive pericarditis
* Tuberculosis (most common cause)
* Pericardial malignancies (especially breast, lung)
* Post-viral pericarditis (especially hemorrhagic)
* Drugs (e.g. Hydralazine, Procainamide, minoxidil, phenytoin)
* Bacterial (purulent) pericarditis
* Trauma / post - cardiac surgery → haemopericardium
* Fungal pericarditis (Histoplasmosis)
* Connective tissue disorders (e.g. SLE, RA, Sarcoidosis)
* Parasitic pericarditis (toxoplasmosis, trichonosis)
* Dressler syndrome
* Mediastinal radiotherapy
* Renal failure

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416. Characteristic histopathological feature of rheumatic heart failure is -

a) Aschoff's nodule

b) Mc Callumn patch

c) Bread & butter pericarditis

d) Shaggy vegetation

Correct Answer - A

Answer- A. Aschoff's nodule

Microscopically, Aschoff bodies are areas of inflammation of the connective tissue of the heart, or focal interstitial inflammation. Fully developed Aschoff bodies are granulomatous structures consisting of fibrinoid change, lymphocytic infiltration, occasional plasma cells, and characteristically abnormal macrophages surrounding necrotic centers.

Some of these macrophages may fuse to form multinucleated giant cells. Others may become Anitschkow cells or "caterpillar cells," so named because of the appearance of their chromatin.

Myocardium involvement results in myocarditis with Aschoff bodies. Endocardium involvement leads to the formation of small warty projections (verrucae) along the line of closure of valvular leaflets, mostly on the mitral valve.

They are pathognomic foci of fibrinoid necrosis found in many sites, most often the myocardium. Initially, they are surrounded by lymphocytes, macrophages, and a few plasma cells, but they are slowly replaced by a fibrous scar. Aschoff bodies are found in all the three layers of the heart, the least chance in the pericardium.

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417. Prosthetic valves are predisposed to -

a) Thromboembolism

b) Infection

c) Hemolysis

d) All of the above

Correct Answer - D
Answer- D. All of the above
Thrombo- embolic events
Bleeding
Prosthetic heart valve obstruction or stenosis
Prosthetic heart valve regurgitation (valvular and paravalvular)
Infective endocarditis
Hemolytic anemia
Patient-prosthesis mismatch.

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418. Most frequent time period between myocardial infarction and subsequent myocardial rupture is -

a) 3-4 days

b) 4-8 days

c) 1-3 weeks

d) 3-6 weeks

Correct Answer - A

Answer- A. 3-4 days

Myocardial rupture may occur almost anytime during 3 weeks after acute myocardial infarction, but is most common between the first and fourth days, when the infracted wall is weakest.

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419. Infarcts involving which portion of the myocardium cause aneurysm as a post-MI complication-

a) Subendocardial

b) Anterior transmural

c) Posterior transmural

d) Inferior wall

Correct Answer - D

Answer. D. Inferior wall

Left ventricular aneurysm formation:

- Left ventricular apical aneurysm formation usually occurs following antero-apical myocardial infarction, after LAD occlusion.
- This weakening of the apical wall results in an outpouching or “dyskinesis” of the apex of the heart during systole.

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420. In patients with hypertrophic cardiomyopathy maximum mutations are found in which gene:

a) . β - myosin heavy chain

b) Elastin

c) . α - tropomyosin

d) Troponin T

Correct Answer - A
β **- Myosin heavy chain**
Mutations in gene for β - Mysoin heavy chain are associated with 40% of the families with hypertrophic cardiomyopathy.
Troponin T mutations - 15% of the families α - tropomyosin mutations ~5% of the families

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421. Mutation in protein associated with restrictive cardiomyopathy?

a) Myosin regulatory proteins

b) Myosin binding protein-C

c) Troponin I

d) Tropomyosin

Correct Answer - C

Answer- C. Troponin I

RCM-associated mutations have been reported in four genes that encode key sarcomeric proteins/myofilaments

1. MYH7 gene - 13-Myosin heavy chain
2. TNNI3 gene - Cardiac troponin I type 3
3. TNNT2 gene - Cardiac troponin T type 2
4. ACTC gene - a- actin

Mutations in the TNNI3 gene are one of the major causes of this condition. The TNNI3 gene provides instructions for making a protein called cardiac troponin I, which is found solely in the heart. Cardiac troponin I is one of three proteins that make up the troponin protein complex, which helps regulate tensing (contraction) and relaxation of the heart muscle.

TNNI3 gene mutations associated with familial restrictive cardiomyopathy result in the production of a defective cardiac troponin I protein.

The altered protein disrupts the function of the troponin protein complex and does not allow the heart muscle to fully relax. As a result, not enough blood enters the ventricles, leading to a buildup in the atria and lungs. The abnormal heart relaxation and blood flow is responsible for many of the signs and symptoms of familial

restrictive cardiomyopathy.

422. Takayasu arteritis mainly affects?

a) Pulmonary artery

b) Celiac artery

c) Subclavian artery

d) SMA

Correct Answer - C

Answer is C (Subclavian Artery):

Subclavian artery is the single most common artery involved in Takayasu arteritis.

Takayasu arteritis : Most common sites affected

- Takayasu arteritis typically involves medium and large sized arteries
- It has a strong predilection for the aortic arch and its branches.
- The involvement of the major branches of the aorta is much more marked at their origin than distally

The most commonly affected arteries as seen by arteriography in order of frequency

- Coronary (<10%)
- Vertebral (35%)
- Coeliac axis (18%)
- Pulmonary (10-40 %)
- Superior Mesenteric (18%)
- Iliac (17%)
- Subclavian (93%)
- Common Carotid (58%)
- Abdominal Aorta (47%)
- Renal (38%)

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423. Strawberry gums are seen in

a) Goodpasteur's syndrome

b) Classic polyarteritis nodosa

c) Wegener's granulomatosis

d) Kawasaki syndrome

Correct Answer - C

Answer- C. Wegener's granulomatosis

- Strawberry gums are seen in Wegner's granulomatosis.
- Strawberry tongue is seen in Kawasaki disease.

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424. Strawberry gingivitis seen in

a) Myelocytic infiltration

b) Phenytoin toxicity

c) Wegner granulomatosis

d) Klipel renaunay syndrome

Correct Answer - C

Wegener's granulomatosis [Ref: IADVL Textbook of Dermatology 3rd9e p. 695]

- Wegener's granulomatosis is known to cause oral mucosal lesions. "Strawberry gingivitis is characteristic oral lesion associated with wegener's granulomatosis".
- Straberry gingivitis clinically presents with: ?
'Swollen erythematous gums clinically resembling overripe strawberries"
Histologically strawberry gingivitis is characterized by

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425. Heinz bodies are removed by?

a) Macrophages

b) Lymphocytes

c) Neutrophils

d) Fibroblasts

Correct Answer - A

Answer- A. Macrophages

* The unstable hemoglobins are those hemoglobin variants that undergo denaturation and precipitation within the red cells as Heinz bodies.
* They give rise to what is known as congenital non-spherocytic hemolytic anemia or congenital Heinz body hemolytic anemia.
* These disorders have either autosomal dominant inheritance or develop from spontaneous mutations.
* The unstable hemoglobins arise from either a single amino acid substitution in the globin chain or due to deletion of one or more amino acids within the β- globin chain so that the firm bonding of the haem group within the molecule is disturbed leading to the formation of methemoglobin and precipitation of globin chains as Heinz bodies.
* Heinz bodies are not seen after the first one or two days since they are removed by the spleen, leading to the formation of ‘bite cells’ and fragmented red cells.
* Macrophages detect the antigen and remove the damaged portions of the cell, its damaged membrane, and the denatured hemoglobin.
* These are associated clinically with congenital hemolytic anemia, G6PD deficiency, hemolytic anemia secondary to drugs such as

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phenacetin, some hemoglobinopathies (thalassemia), and after splenectomy.

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426. Not a feature of G-6PD deficiency?

a) Intravascular hemolysis

b) Oxidative stress

c) Membrane defect

d) Bite cells

Correct Answer - C

Answer- C. Membrane defect

* Among the defects in hexose monophosphate shunt, the most common is G6PD deficiency.
* G6PD gene is located on the X chromosome and its deficiency is, therefore, a sex (X)-linked trait affecting males, while the females are carriers and are asymptomatic.
* PATHOGENESIS: Normally, red blood cells are well protected against oxidant stress because of an adequate generation of reduced glutathione via the hexose monophosphate shunt.
* Individuals with inherited deficiency of G6PD, an enzyme required for hexose monophosphate shunt for glucose metabolism, fail to develop adequate levels of reduced glutathione in their red cells.
* The clinical manifestations are those of acute hemolytic anemia within hours of exposure to oxidant stress.
* The hemolysis is, however, self-limiting even if the exposure to the oxidant is continued since it affects the older red cells only.

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427. Gall stones in hemolytic anaemia are -

a) Pigment

b) Mixed

c) Cholesterol

d) Any type

Correct Answer - A
Ans. is 'a' i.e., Pigment

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428. Hypercoagulability due to defective factor V gene is called :

a) Lisbon mutation

b) Leiden mutation

c) Antiphospholipid syndrome

d) Inducible thrombocytopenia syndrome

Correct Answer - B
Answer is B (Leiden mutation)
Hyper coagulability due to defective Factor V gene is called 'Leiden mutation' and is named after the city in which it was described.
Factor V Leiden
Factor V Leiden is a variant (mutated) of normal clotting factor V and differs from normal clotting factor V by a single nucleotide.
While Factor V Leiden is completely normal in terms of its ability to prevent bleeding, the one amino acid difference makes Factor V Leiden resistant to being degraded by activated protein C and protein S.

- Consequently factor V Leiden persists in the circulation longer and contributes to formation of blood clots.
- Factor V Leiden mutation is the most common underlying genetic cause of thrombophilia (venous thrombosis)
- Factor V Leiden mutation poses a life long risk of deep venous thrombosis.

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429. Cryoprecipitate contains:
March 2009

a) Factor II

b) Factor V

c) Factor VIII

d) Factor IX

Correct Answer - C
Ans. C: Factor VIII
Cryoprecipitate is prepared from plasma and contains fibrinogen, von Willebrand factor, factor VIII, factor XIII and fibronectin.
Cryoprecipitate is the only adequate fibrinogen concentrate available for intravenous use.
Cryoprecipitate is indicated for bleeding or immediately prior to an invasive procedure in patients with significant hypofibrinogenemia (Cryoprecipitate should not be used for patients with von Willebrand disease or Hemophilia A (Factor VIII deficiency). It is not usually given for Factor XIII deficiency, as there are virus-inactivated concentrates of this protein available. Cryoprecipitate is sometimes useful if platelet dysfunction associated with renal failure does not respond to dialysis.

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430. Which of the following is a pro-coagulant?

a) Thrombomodulin

b) Protein C

c) Protein S

d) Thrombin

Correct Answer - D
Answer- D. Thrombin
Various factors involved in coagulation cascodes are factor I (fibrinogen); factor II (prothrombin); factor III (thromboplastin or tissue factor); factor IV (calcium ions or Ca"); factor V (labile factor); factor VI (accclerin); factor VII (stable factor or preaccelerin); factor VIII (antihemophilic factor); factor IX (christmas factor); factor X (stuart-prower factor); factor XI (plasma thromboplastin antecedent or PTA); factor XII (Hageman factor); factor XIII (fibrin stabilizing factor or Laki Lorand factor); HMWK (high molecular weight kinogen); prekallikrein; kallikrein; and platelet phospholipids.

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431. Which test is used for both intrinsic and common clotting pathways?

a) Thrombin time

b) Partial thromboplastin time

c) Ristocetin agglutination test

d) FDPs

Correct Answer - B

Answer- B. Partial thromboplastin time

1) Partial thromboplastin time (PTT) : It tests the intrinsic and common coagulation pathways. So, a prolonged PTT can results from deficiency of factor V, VIII (factor VIIIc, Von willebrand factor), IX, X, XI, XII, prothrombin or fibrinogen.

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432. Maximum life of transfused RBCs is

a) 110-120 days

b) 80-100 days

c) 60-80 days

d) 50-60 days

Correct Answer - B
Answer- B. 80-100 days
Normal average life span of red blood cells in adults is about 120 days, whereas that of transfused RBCs is about 50-60 days"
After an RBC transfusion, the mean potential life span of RBC is 85 days with a mean half life of 43 ± 11 days.

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433. Hemolytic Uremic Syndrome is characterized by ?

a) Microangiopathic haemolytic anaemia

b) Positive Coomb's test

c) Thrombocytopenia

d) a and c

Correct Answer - D

Ans is 'a' i.e., Microangiopathic hemolytic anemia; 'c' i.e., Thromhocytopenia

Hemolytic uremic syndrome

* Hemolytic uremic syndrome is characterized by the triad of :
  - Anemia (microangiopathic hemolytic anemia).
  - Renal failure (microangiopathy of kidney involving glomerular capillaries and arterioles).
  - Thrombocytopenia (due to platelet consumption).
* Hemolytic uremic syndrome is most common is children under 2 years of age.
* It usually follows an episode of acute gastroenterities, often triggered by E coli.
* The prodrome is usually of abdominal pain, diarrhoea and vomiting.
* Shortly thereafter, signs and symptoms of acute hemolytic anemia, thrombocytopenia and acute renal failure ensue. o Sometimes neurological findings also occur. (But usually absent and differentiate HUS from TTP.) o Rarely HUS may follow respiratory tract infection.

Etiology

* Gastrointestinal infection in infants with the following organism :

* E coli, Shigella dysenteriae, Streptococouus pneumoniae

Hematological findings in a case of microangiopathic hemolytic anemia :

* Presence of schistocytes (fragmented red cells). This is the hallmark of microangiopathic hemolytic anemia. o Neutrophil leukocytosis.
* Thrombocytopenia.
* Hemoglobinuria is mild to moderate with hemosiderinuria.
* Blood urea and serum creatinine levels are high.
* PT and APTT normal.
* Elevated serum LDH

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434. All are true about thrombotic thrombocytopenic purpura except?

a) Micro angiopathic hemolytic anemia

b) Thrombocytopenia

c) Normal complement level

d) Grossly abnormal coagulation tests

Correct Answer - D

Ans: D. Grossly abnormal coagulation test [Ref: Robbin's 7m/e p. 1010]

* Thrombotic thrombocytopenic purpura (TTP) is characterized by the presence of widespread thrombosisthroughout the microcirculation.
* The unique characteristic of these thrombi is that they are primarily composed of platelets^{o} with very little fibrin in it.
* The consumption of platelet leads to thrombocytopenia and the presence of intravascular thrombi causes microangiopathic hemolytic anemia^{Q} and widespread organ dysfunction.
* You must have noticed that TTP and DIC share so many similar features such as 4icrovascular occulsion and microangiopathic hemolytic anemia,

But they are pathologically distinct. In TTP

* Activation of coagulation cascade is not of primary importance. The thrombi present are essentially platelet thrombi, hence results of laboratory tests of coagulation such as PT and PTT are usually normal.

In D.I.C.

* The main defect is activation of coagulation system there fore PT

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and PTT are abnormal.
* Patients with TTP are deficient in an enzyme called ADAMTSB. This enzyme is also known as vWf in etalloprotease.
* This enzyme normally degrades very high molecular weight multimers of von-Willebrand factor. In the absence of this enzyme, these multimers of vWF accumulate in plasma and under some circumstances promote platelet macroaggregate formation throughout the microcirculation leading to symptoms of TTP.
* Thrombotic thrombocytopenic purpura is a thrombotic microangiopathy.
* The other disorders which is included in this group include H. U.S.
* The diseases are characterized by widespread thrombosis in microcirculation.
* The vessels which are involved are terminal arterioles[Q] and capillaries.
* These vessels have thrombi.
* The characteristic of this thrombus is that it is primarily a platelet thrombus[Q] i.e. the thrombi is composed mainly of platelets and von Wilebrand factor with very little fibrin in it.

Pathogenesis

* Patients with TTP are deficient in an enzyme called ADAMTSB[Q]. (This enzyme is also known as vWf nielalloproteaSe.)
* This enzyme normally degrades very high molecular weight multimers of von-Willebrand factor. In the absence of this enzyme, these multimers of vWF accumulate in plasma and under some circumstances promote platelet macroaggregate formation throughout the microcirculation leading to symptoms of TTP.
* Platelet associated immunoglobulin (IgG) and complement levels are normal in T.T.P.

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435. Left side shift in Arneth's count is seen in?

a) Megaloblastic anemia

b) Septicemia

c) TB

d) Liver disease

Correct Answer - C
Answer- C. TB
Shift to left (hyperactive bone marrow)
Individuals who have a larger percentage of neutrophills with fewer lobes (mainly NI & N2) have a left shift which can be indicative of disease processes such as infections (pyogenic and TB), malignant tumors, hemolytic crises, myocardial infarction, acidosis, irradiation etc.

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436. Most common heavy chain disease is

a) Franklin disease

b) Seligmann disease

c) Mu heavy chain disease

d) Waldenstrom cryoglobulinemia

Correct Answer - B
Ans. is 'b' i.e., Seligmann Disease (Alpha heavy chain disease)
There are four forms:
* Alpha chain disease (Seligmann's disease)- most common type
* Gamma chain disease (Franklin's disease)
* Mu chain disease
* Delta chain disease

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437. Dutcher bodies are seen in?

a) Brain

b) Liver

c) Spleen

d) Bone marrow

Correct Answer - D
Answer- D. Bone marrow
Dutcher bodies, which are attributed to immunoglobulin filled cytoplasm invaginating into the nucleus creating the appearance of an intranuclear inclusion.
Dutcher bodies are described as intranuclear inclusions in patients with Waldenstrom's macroglobulinemia.
The inclusions are positive on a periodic acid-Schiff reaction and were present in the cytoplasm as well as the nucleus.
They identified the inclusions as glycoprotein and postulated that they might be chemically identical to the macroglobulin in the plasma.

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438. Gamma gandy bodies are seen in all except ?

a) Cirrhosis with portal hypertension

b) Chronic myeloid leukemia

c) Sickle cell anemia

d) Thalassemia

Correct Answer - D
Ans. is 'd' i.e., Thalassemia

- ***Gandy-Gamma bodies*** *are foci of fibrosis containing iron and calcium salts deposits on connective tissue and elastic fibres.*
- ***Gandy-Gamma bodies*** *are seen in congestive splenomegaly e.g.,* ***in sickle cell anemia, CML and liver cirrhosis.***

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439. All of the following statements about Burkitt's lymphoma are true, Except:

a) B cell lymphoma

b) 8, 14 translocation

c) Can present as an abdominal mass

d) Radiotherapy is the treatment of choice

Correct Answer - D

Answer is D (Radiotherapy is the treatment of choice)

The treatment of choice for Burkitt's Lymphoma is chemotherapy and not Radiotherapy.

'Burkitt's lymphoma responds well to short term high dose chemotherapy. Treatment of Burkitt's lymphoma in both children and adults should begin within 48 hours of diagnosis and involves the use of intensive combination chemotherapy regimens' – Harrisons

Burkitt's Lymphoma is a B cell lymphoma

Burkitt's Lymphoma are tumors of mature B cells – Robbins 7th/677

t (8;14) translocation is the most common translocation in Burkitt's Lymphoma Burkitt's lymphomas are associated with translocation of the c-MYC gene on chromosome 8. Translocation

t (8; 14)

t (8; 22)

t (2; 8)

Burkitt's Lymphoma may present with an abdominal mass

Most Burkitt's Lymphoma presents at extranodal sites but may present with lymphadenopathy

Extranodal sites of involvement include the mandible and abdominal viscera

`*Burkitt's Lymphomas may present with peripheral lymphadenopathy*

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or an intraabdominal mass' – Harrison

CNS involvement is frequent

The disease is rapidly progressive and has a propensity to metastasize to CNS, prophylactic therapy to CNS is therefore mandatory.

Burkitt's Lymphoma is the most rapidly progressive human tumor

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440. **Oncogene associated with burkitt's lymphoma is:**

a) BCL-1, IgH

b) BCL-2, IgH

c) C-MYC

d) ALK

Correct Answer - C

Disease	Cytogenetic Abnormality	Oncogene
Mantle cell lymphoma	t(11;14)(q13;q32)	BCL-1, IgH
Follicular lymphoma	t(14;18)(q32;q21)	BCL-2, IgH
Diffuse large cell lymphoma	t(3;-)(q27;-) t(17;-)(p13;-)	BCL-6 p53
Burkitt's lymphoma, Burkitt's leukemia	t(8;-)(q24;-)	C-MYC
CD30+ Anaplastic large cell lymphoma	t(2;5)(p23;q35)	ALK
Lymphoplasmacytoid lymphoma	t(9;14)(p13;q32)	PAX5, IgH

Ref: Harrison, E-18,P-921

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441. Cag A gene is associated with

a) Hepatocellular carcinoma

b) Esophageal carcinoma

c) MALT lymphoma

d) Lung carcinoma

Correct Answer - C

Answer- C. MALT lymphoma

CagA, A gene that codes for an immunodominant antigen, is present only in Helicobacter pylori strains that are associated with severe forms of the gastroduodenal disease (type I strains).

Helicobacter pylori is a microaerophilic spiral-shaped lophotrichous Gram-negative bacterium that colonizes the gastric lumen of primates, including humans.

H pylori was identified as the cause of chronic active gastritis and peptic ulcer disease in humans and is considered to be a risk factor for the development of gastric adenocarcinoma and MALT lymphoma

442. **Richter's syndrome refers to which of the following malignant transformation?**

a) CLL evolving into aggressive lymphoma

b) Hairy cell leukemia evolving to AML

c) Blast crisis in CML

d) Splenic infiltration in NHL

Correct Answer - A

Ans. A. CLL evolving into aggressive lymphoma

Richter's transformation or Richter's syndrome is a complication of B cell chronic lymphocytic leukemia (CLL) or hairy cell leukemia (HCL) in which the leukemia changes into a fast-growing diffuse large B cell lymphoma.

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443. Basophillic leucocytosis occurs in -

a) AML

b) ALL

c) CML

d) CLL

Correct Answer - C
Ans. is 'c' i.e., CML

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444. TEL-AML 1 fusion is associated with?

a) CLL

b) CML

c) ALL

d) AML

Correct Answer - C
Answer- C. ALL
TEL-AML 1 gene fusion is the most common genetic alteration in childhood acute lymphoblastic leukemia. It is created by balanced translocation t (12 : 21).
Cytogenetic abnormalities associated with ALL are gain of function mutation in NOTCH-1 gene in T-cell ALL.

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445. Granulomatous lung disease is caused by?

a) Hypersensitivity pneumonitis

b) Sarcoma

c) Bronchogenic carcinoma

d) Bronchogenic cyst

Correct Answer - A
Answer- A. Hypersensitivity pneumonitis
Granulomatous lung disease refers to a broad group of infectious and well as noninfectious conditions characterized by the formation of granulomas.
Infectious : Mycobacterial (TB & Non-TB); Fungal infection (cryptococcus, Histoplasma, Blastomycosis, Coccidioidomycosis, Aspergillosis); Parasitic Infections.
Non-infectious: Sarcoidosis; Wegner granulomatosis; Churg Strauss syndrome; Chronic granulomatous disease; Hypersensitivity pneumonitis; RA; Chronic Aspiration Pneumonitis; Langerhans Cell Histiocytosis; substances (Talc Granulomatosis, Berylliosis)

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446. Terminal stage of pneumonia is

a) Congestion

b) Red hepatization

c) Gray hepatization

d) Resolution

Correct Answer - D

Ans. is 'd' i.e., Resolution

- In the usual course of pneumonia, final stage is resolution.
- However, in some neglected cases following complications may develop -

Abscess formation Pleural effusion, pleuritis
Empyema Becteremic dissemination Brain abscess, endocarditis, meningitis,
Organization supurrative arthritis.

Pathological changes of bacterial pneumonia

A.Lobar pneumonia

- Large confluent area of the lung or entire lobes are consolidated.
- The lower lobes are affected most commonly.
- There are four stages of the inflammatory response (Laennec's stages) ?

1. Stage of congestion (initial phase)

- The affected lobe is enlarged, heavy, dark red and congested.
- Cut surface exudes blood-stained frothy fluid.
- There is dilatation and congestion of alveolar capillaries.
- There are few neutrophils and *numerous bacteria* in the alveolar fluid.

2. Stage of red hepatization (early consolidation)

- The term hepatization refers to liver-like consistency of the affected

lobe on cut section.

- The affected lobe is *red and firm.*
- The edema fluid of preceding stage is replaced by strands of fibrin.
- There is marked cellular exudate of neutrophils with extravasation of red cells.

3. Stage of gray hepatizatioa (late consolidation)

- The affected lobe is grayish brown, firm and dry.
- The fibrin strand are dense and more numerous.
- There is progressive disintigration of red cells and neutrophils.
- The macrophages begin to appear in the exudate.
- The organisms are less numerous and appear as degenerated forms.

4. Resolution

- The previously solid and fibrinous constituent is liquefied by enzymatic action.
- Granular and fragmented strands of fibrin in the alveolar spaces are seen due to progressive enzymatic digestion.
- There is progressive removal of fluid content as well as cellular exudate from the air spaces, resulting in restoration of normal lung parenchyma with areation.

B.Bronchopneumonia

- Patchy areas of red or grey consolidation, more often multilobar and frequently bilateral and basal (lower zones) because of tendency of secretions to gravitate into lower lobes..
- There is suppurative exudate, consisting chiefly neutrophils, filling bronchi, bronchioles and adjacent alveolar spaces.
- Alveolar septa thicken due to congested capillaries and leucocytic infiltration.

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447. Pink puffers are associated with?

a) Emphysema

b) Chronic bronchitis

c) Pneumonia

d) Bronchiectasis

Correct Answer - A
Answer- A. Emphysema
A "pink puffer" is a person where emphysema is the primary underlying pathology
In emphysema, not only there is less surface area for gas exchange, there is also less vascular bed for gas exchange. . The body then has to compensate by hyperventilation (the "puffer").
Have less hypoxemia (compared to blue bloaters) and appear to have a "pink" complexion and hence "pink puffer".

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448. Most common cancer found in coal mine workers

a) Anal canal

b) Testicular

c) Lung

d) Liver

Correct Answer - C
Answer- C. Lung
Among coal worker pneumoconiosis patients standard incidence ratio of various important carcinomas : ovary (2.0) > esophagus (1.76) Lung > (1.45) > Stomach (1.42) > Liver (1.18) > kidney (1.06) > prostate (1.02) > colorectal (1.00) > urinary bladder (0.91) > head & neck (0.87)

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449. In allergic bronchopulmonary aspergillosis, the location of lesions is

a) Pleura

b) Bronchi and bronchioles

c) Alveoli

d) All of the above

Correct Answer - B

Answer- B. Bronchi and bronchioles

- Allergic bronchopulmonary aspergillosis (ABPA) is a condition characterized by a hypersensitivity response to the Aspergillus (most commonly Aspergillus fumigatus).
- An allergic bronchopulmonary aspergillosis is a form of lung disease that occurs in some people who are allergic to Aspergillus.
- With ABPA, this allergic reaction causes the immune system to overreact to Aspergillus leading to lung inflammation.
- ABPA causes bronchospasm (tightening of airway muscles) and mucus buildup resulting in coughing, breathing difficulty and airway obstruction.
- it also causes airway inflammation, leading to bronchiectasis—a condition marked by abnormal dilation of the bronchi and bronchioles.

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450. Deficiency of p53 mutation is maximum in which lung carcinoma?

a) Small cell carcinoma

b) Squamous cell carcinoma

c) Adenocarcinoma

d) Lymphoma

Correct Answer - B
Answer- B. Squamous cell carcinoma
-MYC and RB - small cell cancer

- RAS and p16 - non-small cell cancer
- p53 - both small and non-small cell, but highest in squamous cell carcinoma
- K-RAS –adenocarcinoma

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451. Metastasis to lungs come most commonly from

a) Breast carcinoma

b) Brain carcinoma

c) Bone carcinoma

d) Melanoma

Correct Answer - A

Answer- A. Breast carcinoma

Metastatic tumor to lung originate from carcinoma in the breast, colon, stomach, pancreas, kidney, prostate, liver, thyroid, adrenal, male genital tract and female genital tract.

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452. Which type of paraneoplastic syndrome is most commonly associated with lung carcinoma?

a) SIADH

b) Gynaecomastia

c) Acanthosis nigricans

d) Hypocalcaemia

Correct Answer - A

Answer- A. SIADH

SIADH is the most common paraneoplastic syndrome associated with lung carcinoma as Small cell carcinoma is the most common type of lung cancer associated with ectopic hormone production and paraneoplastic syndrome and ADH (Causing SIADH), ACTH (Causing cushingsyndrome) production are predominantly associated small cell carcinoma.

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453. Most common cause of chylothorax is?

a) Trauma

b) Lymphoma

c) Left-sided heart failure

d) Infections

Correct Answer - B

Answer- B. Lymphoma

- Chylothorax is a pleural collection of a milky lymphatic fluid containing micro globules of lipid.
- It results from lymph formed in the digestive system called chyle accumulating in the pleural cavity due to either disruption or obstruction of the thoracic duct.
- The total volume of fluid may not be large, but chylothorax is always significant because it implies obstruction of the major lymph ducts, usually by intrathoracic cancer like primary or secondary mediastinal neoplasm, such as lymphoma.

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454. True Statement about silicosis -

a) Produces pleural plaque

b) Associated with tuberculosis

c) Lower lobe infiltration

d) All

Correct Answer - B

Ans. is 'b' i.e., Associated with tuberculosis

Silicosis

3 Silicosis is a lung disease caused by inhalation of crystalline silicon dioxide (silica).

* Currently, it is the most prevalent occupational disease in the world.
* Silicosis is a slowly progressive disease, usually presenting after decades of exposure as slowly progressive nodular fibrosing pneumoconiosis.
* Silica occurs in both crystalline and amorphous forms but crystalline forms are much more fibrogenic. The crystalline form are quartz, crystobalite.
* Silicosis is characterized in its early stages by nodules in the upper zones of the lung. As the disease progresses these nodules may coalesce into hard collagenous scars.
* Fibrotic lesions occur in the hilar lymph node and pleura. Sometimes thin sheets of calcification occur in the lymph nodes and are seen radiographically as eeg shell calcification i.e. (calcium surrounding a zone lacking calcification.
* It the disease continues to progress, expansion and coalescence of lesions produce progressive massive fibrosis. o Histologically the lesions of silicosis consists of concentric layers of hyalinized

collagen surrounded by a dense capsule of more condensed collagen.
* Examination of the nodules by polarized microscopy reveals the birefringent silica particles.
* Silicosis is associated with an increased susceptibility to T.B. It is postulated that silicosis results in depression of cell mediated immunity and the crystalline silica may inhibit the ability of pulmonary macrophages to kill phagocytosed mycobacteria.
* Nodules of silicotuberculosis often display a central zone of caseation.

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455. Most common type of pneumoconiosis, associated with TB is?

a) Silicosis

b) Bysinosis

c) Asbestosis

d) Baggassosis

Correct Answer - A
Answer- A. Silicosis
Silicosis is associated with increased susceptibility to T.B.
It is postulated that silicosis results in a depression of cell-mediated immunity, and crystalline silica may inhibit the ability of pulmonary macrophages to kill phagocytosed mycobacteria.
Nodules of silicotuberculosis often contain a central zone of caseation.

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456. On polarising microscopy, refractile body in the centre of granuloma is seen in?

a) Sarcoidosis

b) Silicosis

c) Tuberculosis

d) Asbestosis

Correct Answer - B

Answer- B. Silicosis

Histologically the lesions of silicosis consist of concentric layers of hyalinized collagen surrounded by a dense capsule of more condensed collagen. Examination of the nodules by polarized microscopy reveals the birefringent silica particles.

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457. Anthracosis is due to inhalation of-

a) Coal dust

b) Asbestos

c) Silica dust

d) Berylium dust

Correct Answer - A

Ans. is *'a' i.e.*, Coal dust

Coal worker's pneumoconiosis (Black lung)

Black lung disease, also known as coal worker's pneumoconiosis (CWP), is caused by long exposure to coal dust. o Coal worker's pneumoconiosis has following spectrum.

1. Asymptomatic anthracosis

* Inhaled carban pigment is engulfed by alveolar or interstitial macrophages, which then accumulate in the connective tissue along the lymphatics.
* Patient is completely asymptomatic.

2. Simple coal worker's pneumoconiosis

* Characterized by coal macules (composed of carbon laden macrophages) and coal nodules (carbon laden macrophages + collegen).
* The upper lobes and upper zones of the lower lobes are involved.
* They are located primarily adjacent to respiratory bronchioles, the site of initial dust accumulation.
* Centriacinar emphysema may develop.

3. Complicated coal worker's pneumoconiosis

* Requires many years to develop.
* Characterized by intensely blackened multiple scar larger than 2 cms. o This is also known as Progressive massive fibrosis.

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* In CWP and silicosis upper zones of lung are involved initially. o In asbestosis lower lung fields are involved initially.

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458. Chronic bronchitis is associated with?

a) Increase in number of glands without any change in size

b) Bronchiolitis obliterans

c) Decrease in Reid index

d) Only large airways are involved

Correct Answer - B

Answer- B. Bronchiolitis obliterans

The earliest feature of chronic bronchitis is hypersecretion of mucus in the larger airways, associated with hypertrophy of submucosal gland of trachea and bronchi.

Later, small airways (small bronchi and bronchioles) are also involved and show goblet cell hyperplasia, and intraluminal and peribronchial fibrosis.

In most severe cases, there may be oblitration of lumen due to fibrosis → Bronchiolitis obliterans.

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459. Histopathology showing large cells with plant like apperance with perinuclear halo is seen in which type of renal cell carcinoma ?

a) Onchocytoma

b) Granular cell carcinoma

c) Angiosarcoma

d) Chromophobic

Correct Answer - D
Ans. is 'd' i.e., Chromophobic
Histopathological findings of perinuclear halo and plant cell appearance are seen in **chromophobe cell carcinoma** ofRCC.
Electron microscopic finding consisting of numerous 150-300 nm microvesicles is the single most distinctive and defining feature of chromophobe cell ca.

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460. True about RCC is?

a) Most common site is lower lobe of kidney

b) Most common variety is papillary type

c) Invasion of renal vein is more common than renal artery

d) Most common site of metastasis is lymph nodes

Correct Answer - C

Answer- C. Invasion of renal vein is more common than renal artery

Renal cell carcinoma is the most common malignant tumor of kidney. It occurs usually in 6th and 7th decade of life. There is male preponderance.

Important risk factors for RCC are smoking (most significant), obesity, hypertension, asbestos exposure, estrogen therapy, CRF, tuberous sclerosis and familial conditions (Von Hippel-Lindau syndrome).

RCC is an adenocarcinoma and most commonly arises from upper pole.

The one of the striking characteristics of RCC is to invade renal vein and is associated with poor prognosis.

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461. Strawberry gall bladder is seen in

a) Cholesterosis

b) Primary sclerosing cholangitis

c) Cholestasis

d) Primary billiary cirrhosis

Correct Answer - A
Answer- A. Cholesterosis
In Cholesterosis, there are deposits of cholesterol in the epithelial cells and in the submucosal macrophages. This gives appearance of multiple small yellow spots on a red hyperplastic muscosa, the straberry gallbladder.

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462. What is responsible for regeneration of liver cells?

a) HGF

b) VEGF

c) TGF-13

d) IFN-y

Correct Answer - A
Answer- A. HGF
Hepatocyte growth factor (HGF/scatter factor) levels rise to high levels soon after partial hepatectomy. This is the only factor tested that acts by itself as a potent mitogen for isolated hepatocytes cultured in vitro. This factor is also of critical importance in development of the liver, as target deletions of its gene lead to fetal death due to hepatic insufficiency.

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463. **Bridging necrosis is characteristically seen in:**

a) Acute hepatitis

b) Chronic hepatitis

c) Both of the above

d) None of the above

Correct Answer - C

Ans: C. Both of the above

Bridging necrosis is a more severe form of hepatocellular injury in acute viral hepatitis and may progress to fulminant hepatitis or chronic hepatitis. Bridging necrosis is characterized by bands of necrosis linking portal tracts to central hepatic veins, one central hepatic vein to another, or a portal tract to another tract.

In severe cases of acute hepatitis, confluent necrosis of hepatocytes may lead to bridging necrosis connecting portal-to-portal, central-to-central, or portal-to-central regions of adjacent lobules.

Hepatocyte swelling and regeneration compress sinusoids, and the more or less radial array of hepatocyte plates around terminal hepatic veins are lost.

Bridging fibrosis is an important component of severe examples of chronic viral hepatitis and steatohepatitis.

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464. The zonal necrosis most commonly affected in chronic passive hepatic congestion is?

a) Central

b) Peripheral

c) Mid zonal

d) None

Correct Answer - A
Answer- A. Central
Centrilobular hemorrhagic necrosis is caused by chronic passive congestion (CPC) due to right heart failure.

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465. Normally squamo-columnar junction is usually located at

a) Distal 2-3 cms of esophagus

b) Proximal 2-3 cms of stomach

c) In esophagus more than 3cms proximal to GEJ

d) None of the above

Correct Answer - B
Answer- A. Distal 2-3 cms of esophagus
Proximal extension of the squamocolumnar junction beyond the distal 2-3 cms of oesphagus is abnormal and is suggestive of Barrett's esophagus.

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466. Carcinoma associated most commonly with upper one third of esophagus is

a) Adenocarcinoma

b) Squamous cell Carcinoma

c) Adeno-squamous Carcinoma

d) Leiomyosarcoma

Correct Answer - B

Answer- B. Squamous cell Carcinoma

Squamous cell carcinoma is the most common type of esophageal carcinoma worldwide and in India. It usually occurs in middle 1/3rd (mot common) and upper 1/3' of esophagus. Some may also arise in lower 1/3

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467. Autoimmune gastritis is associated with deficiency of vitamin?

a) A

b) B12

c) C

d) D

Correct Answer - B
Answer- B. B12
In autoimmune gastritis, two important auto antibodies causing damage are anti-parietal cell antibodies (most common) and antibodies against intrinsic factor; anti-IF (most specific).
Vitamin B-12 deficiency and pernicious anemia : Due to deficiency of IF cells (secreted by parietal cells) as well as damage of IF by anti-IF antibodies.

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468. Blood group most commonly associated with gastric carcinoma is?

a) Blood Group 0

b) Blood group A

c) Blood group AB

d) Blood group B

Correct Answer - B
Answer- B. Blood group A
Genetic factors : Blood group A, Hereditary nonpolyposis colon cancer syndrome (HNPCC) and Familial gastric cancer syndrome (E-cadherin mutation).

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469. Which disease is diagnosed by jejunal biopsy?

a) Celiac disease

b) Intestinal lymphoma

c) Argentaffinoma of intestine

d) Tropical sprue

Correct Answer - B

Answer- B. Intestinal lymphoma

the jejunal biopsy is useful in the diagnosis of the following disorders:

- Intestinal lymphoma
- Intestinal lymphangiectasia
- Eosinophilic gastroenteritis
- Amyloidosis
- Crohn's disease
- Infection by one or more
- microorganisms
- Mastocytosis
- Whipple's disease

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470. commonest benign tumor of the esophagus?

a) Leiomyoma

b) Papilloma

c) Adenoma

d) Hemangioma

Correct Answer - A
Ans is a. i.e. Leiomyoma
"Leiomyomas constitute more than 50% of benign esophageal tumors "-Schwartz

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471. Total colonic aganglionosis is a variant of?

a) Crohn's disease

b) Ulcerative colitis

c) Hirschsprung's disease

d) Tropical sprue

Correct Answer - C
Answer- C. Hirschsprung's disease
Hirschprung disease (Congenital aganglonic megacolon) is caused by defective migration of neural crest into the mesodermal layer of gut. There is aganglionosis (absence of ganglions) in a portion of intestinal tract. Intestinal segment lacks both Meissner submucosal and Auerbach myenteric plexuses.

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472. APC gene is involved in?

a) Colorectal carcinoma

b) Gastric carcinoma

c) Gastric lymphoma

d) Esophageal adenocarcinoma

Correct Answer - A
Answer- A. Colorectal carcinoma
The APC protein is a negative regulator that controls beta-catenin concentrations and interacts with E-cadherin, which are involved in cell adhesion.
Mutations in the *APC* gene may result in colorectal cancer

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473. Vitamin deficiency associated with cystic fibrosis is

a) K

b) B6

c) C

d) B12

Correct Answer - D
Answer- D. B12
Patients with cystic fibrosis (CF) are at risk of developing deficiencies of fat-soluble vitamins (A, D, E, and K) because of pancreatic insufficiency, hepatobiliary disease, or both.

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474. False about Patterson-Kelly-Brown syndrome is?

a) Anemia

b) Esophageal webs

c) Glossitis

d) Risk factor for adenocarcinoma

Correct Answer - D
Answer- D. Risk factor for adenocarcinoma
Plummer-Vinson syndrome (PVS) (Paterson-Brown-Kelly syndrome or sideropenic dysphagia), is characterized by difficulty in swallowing, iron deficiency anemia ,glossitis, chielosis, and esophageal webs.

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475. Most common site for carcinoma pharynx in females suffering from plummer vinson syndrome is

a) Post cricoid region

b) Posterior wall

c) Lateral wall

d) Pyriformis fossa

Correct Answer - A

Ans. is 'a' i.e., Post cricoid

Plummer-Vinson syndrome

- Plummer-Vinson syndrome, also known as Brown-Kelly-Paterson syndrome or sederopenic dysphagia, seen in middle aged edentulous women.
- The plummer Vinsion Paterson Brown Kelly Syndrome is characterized by : -
- *Dysphagia*
- *Chronic iron deficiency anemia*
- *Atrophic oral mucosa and glossitis*
- *Brittle, spoon-shaped fingernails (Koilonychia)*
- The cause of dysphagia is usually a *cervical esophageal web,* but abnormal pharyngeal and esophageal motility may play a role.
- The syndrome characterstically occurs in *middle aged edentulous* (without teeth) women.
- It is *a premalignant lesion.* Approximately 10% of patient develop *squamous cell Ca* of esophagus, oral cavity or the hypopharynx.
- As iron-deficiency anemia is a common finding, it is also known as *sideropenic dysphagia.*

- *Carcinoma develops in post-cricoid region.*

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476. **Commonest carcinoma that can cause splenic metastasis is which of the following?**

a) Ca. Pancreas

b) Ca. Stomach

c) Ca. Ovary

d) Ca. Cervix

Correct Answer - C

Although isolated metastasis to spleen is rare, studies found the most common primary neoplasms with splenic metastasis to be gynecologic (61%), with majority being ovarian, colorectal (15%), lung (9%), and stomach (4%).

Ref: CT and MRI of the Abdomen and Pelvis: A Teaching File edited by Pablo R. Ros, Koenraad J. Mortele, 2006, Page 218.

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477. Phlegmonous gastritis occurs due to?

a) H. pylori

b) E. coli

c) C. jejuni

d) Cl. Tetani

Correct Answer - B
Answer- B. E. coli
Most cases of phlegmonous gastritis are due to alpha-hemolytic streptococci, although pneumococci, staphylococci, Escherichia coli, and rarely, Proteus Vulgaris and Clostridium welchii can be the causative organisms.

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478. Collar button ulcer is found in?

a) Ulcerative colitis

b) Crohn's disease

c) Shigella

d) All of the above

Correct Answer - D
Answer- D. All of the above
"Collar button ulcers", a radiological sign, are manifestations of inflammatory processes within the bowel.
Collar button ulcers have also been observed in the setting of other inflammatory bowel processes, such as Crohn's disease, ischemic colitis, and shigellosis.

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479. **Which of the following would be the best morphological feature to distinguish ulcerative colitis from Crohn's disease?**

a) Diffuse distributions of pseudopolyps

b) Mucosal edema

c) Crypt abscesses

d) Lymphoid aggregates in the mucosa

Correct Answer - A

Pseudopolyps are more commonly found in ulcerative colitis than Crohn's disease.
These are discrete areas resulting from surviving islands of mucosa or heaped up granulation tissue.
Since in ulcerative colitis there is diffuse mucosal inflammation these pseudopolyps are diffusely distributed.

Distinguishing features between Ulcerative colitis and Crohn's disease:

	Ulcerative colitis	**Crohn's disease**
Rectal involvement	Yes	Variable
Distribution	Diffuse	Segmental or diffuse
Terminal ileum	Backwash ileitis	Thickened and stenosis
Serosa	Normal	Creeping fat
Mucosa	Hemorrhagic	Cobblestone and linear ulcers
Pseudopolyps	Frequent	Less common
Strictures	No	Common
Fistulas	No	Common
Lymphoid hyperplasia	Infrequent	Common
Crypt abscess	Extensive	Focal

Ref: Pediatric Inflammatory Bowel Disease By Petar Mamula page 227.

480. Penile carcinoma is usually?

a) Squamous cell carcinoma

b) Basal cell carcinoma

c) Adenocarcinoma

d) Small cell carcinoma

Correct Answer - A
Answer- A. Squamous cell carcinoma
Most of penile cancers are squamous cell carcinoma and arise on glans or inner surface of prepuce.

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481. Stain used for staining the nucleus is?

a) Safranin

b) Fast green

c) Hematoxylin

d) Erythrosine

Correct Answer - C
Answer- C. Hematoxylin
Hematoxylin stains the cell nucleus and other acidic structures (such as RNA-rich portions of the cytoplasm and the matrix of hyaline cartilage) blue, while eosin stains cytoplasm, connective tissue and other extracellular substances pink or red.

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482. All are associated with diabetic gangrene except?

a) Wet gangrene

b) Dry gangrene

c) Gas gangrene

d) Fournier's gangrene

Correct Answer - C
Answer- C. Gas gangrene
It is a bacterial infection that produces gas within tissues. It can be caused by Clostridium, most commonly alpha toxin producing Clostridium perfringens, or various non-clostridial species.

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483. Choroid metastasis is associated most commonly with?

a) Gastric carcinoma

b) Renal carcinoma

c) Brain tumor

d) Bone tumor

Correct Answer - B

Answer- B. Renal carcinoma

- Tumors most likely to metastasize to the choroid plexus are renal cell carcinoma and lung cancer. Other tumors with documented spread to the choroid plexus include colon, gastric, breast, thyroid, and bladder cancers, melanoma and lymphoma.

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484. Which of the following statements about the pathology in Alzheimer's disease is not true:

a) Neuritic Plaques are formed of amyloid protein

b) Neurofibrillary tangles (NFT) are made of tau protein

c) NFTs appear extracellularly before intracellular appearance

d) Number of NFTs correlates with dementia

Correct Answer - C

Answer is C (NFTs appear extracellularly before intracellular appearance):

NFTs are typically seen intracellularly within the soma and proximal dendrites of neurons.

Neurofibrillary Tangles (NFTs) are intracellular accumulations of hyperphosphorylated 'tau' proteins.

Neurofibrillary Tangles are Intracellular Accumulations

- *Neurofibrillary Tangles are intracellular accumulations of hyperphosphorylated microtubule binding protein 'tau'.*
- *Paired helical filaments of tau protein (NFTs) form intracellularly within the soma and proximal dendrites of neurons.*
- *These cytoskeletal protein tangles (NFTs), initially impede cellular metabolism and axosplasmic transport leading to impaired synaptic function and eventually to neuronal death.*
- *These neurofibrillaty tangles may be seen as extracellular tangles after degeneration of the neuron as evidence of the neuronal cell's demise*
- *Neurofibrillary Tangles are intracellular accumulations that may appear extracellularly alter degeneration of neuron (neuronal death)*

Histopathological Hallmarks of Alzheimer's Disease

Amyloid Plaques (Extracellular)

- Amyloid *Neuritic Plaques are formed by extracellular accumulation of beta amyloid* deposits within the neutropil
- 'Neuritic' or 'Senile' I3-amyloid plaques are an early histopathological sign of Alzheimer's disease (that occur rarely in healthy subjects)
- The amyloid 13-protein accumulated in single neuritic plaques is toxic to surrounding structures and adjacent neurons.
- *Clinicopathological studies have shown that amy/aid burden does not directly correlate with severity or duration of dementia.*

Neurofibrillary Tangles (Intracellular)

- Neurofibrillary tangles arc formed by *intracellular accumulation of hyperphosphorylated microtubule binding protein 'tau'.*
- NFT's occur in many neurodegenerative diseases and /or a group of diseases called laupathies'.
- These include Frontotemporal dementia, Pick's disease etc. *The cooccurance of fi-amyloid plaques with NFT's suggests a diagnosis of AD.*
- The NFT's are toxic to the neurons and neurons with NFT's eventually die and degenerate leaving a residual `*ghost tangle',* in the extracellular space reminding of the pyramidal cell body in which it was initially formed.
- *Clinicopathological studies have shown that dementia correlates more strongly with NFT's than with senile plaques (3-amyloid)*

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485. Metastasis to thyroid comes from which primary site of malignancy?

a) Liver

b) Testis

c) Prostate

d) Kidney

Correct Answer - D
Answer- D. Kidney
Most common primary sites are kidney, breast, lung, uterus, and melanoma.

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486. Which of the following is the most common mutation in Ewing's sarcoma -

a) Translocation X : 18

b) Translocation 11; 22

c) Activative mutation of $G5_{a,p}$, surface protein

d) Missense mutation in EXTI

Correct Answer - B

Ans. is 'b' i.e., Translocation 11; 22

Ewing's sarcoma is typically charachterized by a translocation t (11; 22) (q 24; q12) in upto 90% of patients.

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487. Least desmoplastic breast carcinoma is

a) Ductal

b) Lobular

c) Tubular

d) Medullary

Correct Answer - B
Answer- B. Lobular
"Invasive lobular carcinoma has a tendency to spread diffusely or between the collagen fibers of the breast and produces desmoplastic response"

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488. Marker for neuroblastoma among the following is?

a) NMP 22

b) Chromogranin A

c) LDH

d) 32 microglobulin

Correct Answer - B
Answer- B. Chromogranin A
Neuroendocrine markers of neuroblastoma :- i) CD-56 ii) Chromogranin-A iii) Synaptophysin

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489. Thymic hyperplasia is seen in ?

a) Thymoma

b) Thymic lymphoma

c) Myasthenia gravis

d) Scleroderma

Correct Answer - C

Ans. is 'c' i.e., Mysthenia gravis

Thymic hvperplasia

- The term thymic hyperplasia usually applies to the appearance of B-cell germinal centers within the thymus, a finding that is referred to *as thymic follicular hyperplasia.*
- Such B-cell follicles are present in only small numbers in the normal thymus.
- It can occur in a number of chronic inflammatory and immunologic states, but it is most frequently encountered in myasthenia gravis (65% to 75% of cases).
- Similar thymic changes are sometimes encountered in Graves disease, systemic lupus erythematosus, scleroderma, rheumatoid arthritis, and other autoimmune disorders.

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490. In Endometrial carcinoma, which of the following tumor suppressor gene occurs?

a) P53

b) Rb

c) PTEN

d) APC

Correct Answer - C
PTEN is a tumor suppressor gene which is implicated in the causation of endometrial and prostate carcinoma.

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491. Folding defect is associated with which disease

a) Parkinson's disease

b) Marfan syndrome

c) Acute intermittent porphyria

d) Wermer syndrome

Correct Answer - A
Answer- A. Parkinson's disease
Defective protein folding disorders (DPFDs) are a group of diverse neurological and systemic diseases in which the hallmark pathological event is the misfolding, aggregation and accumulation of a protein in different organs, inducing cellular apoptosis, tissue damage and organ dysfunction .
Includes Alzheimer's disease, transmissible spongiform encephalopathies, serpin-deficiency disorders, sickle cell anemia, Huntington's disease, diabetes type II, amyotrophic lateral sclerosis, Parkinson's disease, dialysis-related amyloidosis, spinocerebellar ataxias, secondary or reactive amyloidosis, cystic fibrosis and prion diseases.

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492. Stain used for tubulin is

a) Luna stain

b) Cajal stain

c) SiR stain

d) Masson's trichrome

Correct Answer - C
Answer- C. SiR stain
fluorescent stains (SiR-Actin and SiR-Tubulin) are cell permeable compounds which stain F-actin and microtubules, respectively.

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493. X-linked adrenoleukodystrophy is

a) Fatty acid disorder

b) Lysosomal storage disorder

c) Mucoplysaccharridoses

d) Glycogen defect disorder

Correct Answer - A
Answer- A. Fatty acid disorder
X-linked adrenoleukodystrophy(ALD/X-ALD) is a disease is caused by mutations in ABCD1, a gene located on the X chromosome, that codes for ALD, a peroxisomal membrane transporter protein.

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494. Chromosome for MEN2 gene is

a) 11q13

b) 13q11

c) 10811.2

d) 11q10-2

Correct Answer - C
Answer- C. 10811.2
Multiple endocrine neoplasia type 1 MEN1 11813
Multiple endocrine neoplasia type 2a RET 10811.2

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495. Hob nail appearance is seen in

a) Clear cell carcinoma

b) Endodermal sinus tumor

c) HCC

d) Choriocarcinoma

Correct Answer - A

Answer- A. Clear cell carcinoma

Hobnail cell is a cell with a characteristic appearance, including a bulbous nucleus and nuclear projections into the cytoplasm. Hobnail cells are found in clear cell ovarian adenocarcinoma, collecting duct carcinoma, and in end-stage cirrhosis

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496. Sphenoid dysplasia is seen in?

a) NF-1

b) Tuberous sclerosis

c) Sturge-Weber syndrome

d) Creutzfeldt-Jakob disease

Correct Answer - A

Answer- A. NF-1

NF-1 is diagnosed if two of following sevens are present :

1. Six or more cafe-au-lait macules : > 5mm in prepubertal age and > 15 mm in postpubertal age.
2. Axillary or inguinal freckling.
3. Two or more Lisch nodules (hamartomas on iris).
4. Two or more neurofibroma or one plexiform neurofibroma.
5. A distinctive osseous lesion : Sphenoid dysplasia or cortical thinning of long bones.
6. Optic glioma.
7. A first degree relative with NF-1.

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497. In a case of Dysgerminoma of ovary one of the following tumor markers is likely to be raised :

a) Serum HCG

b) Serum alphafetoprotein

c) Serum lactic dehydrogenase

d) Serum inhibin

Correct Answer - C
Ans. is c i.e. Serum lactic dehydrogenase
however placental alkaline phosphate and lactate dehydrogenase are commonly produced by dysgerminomas and may be useful in monitoring the disease."

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498. Most common site for ectopic thyroid tissue is?

a) Ovaries

b) Lingual

c) In front of hyoid bone

d) Stomach

Correct Answer - B

Answer- B. Lingual

- By far the most common location is near its embryological origin at the foramen caecum, resulting in a lingual thyroid. This accounts for 90% of all cases of ectopic thyroids.

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499. Salivary schintigraphy is useful in?

a) Monomorphic adenoma

b) Pleomorphic adenoma

c) Sialidinitis

d) Sjogren syndrome

Correct Answer - D

Answer- D. Sjogren syndrome

- Technitium pertechnetate scans (Salivary scintigraphy) tests the size, shape and function of the salivary glands. It is useful.

1. To help determine the cause of salivary gland swelling (e.g. bacteria or virus).
2. To detect a blockage of the salivary ducts.
3. To detect a growth in the salivary glands (e.g. Warthin's Tumour).
4. To help diagnose abnormal mouth dryness as Sjogren's Syndrome.

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500. Trilateral retinoblastoma is?

a) Bilateral Retinoblastoma plus medulloblastoma

b) Bilateral retinoblastoma plus pineoblastoma

c) Bilateral retinoblastoma plus neuroblastoma

d) Bilateral retinoblastoma plus ependymoma

Correct Answer - B

Answer- B. Bilateral retinoblastoma plus pineoblastoma

- Trilateral retinoblastoma (TRb) refers to the combination of retinoblastoma (usually bilateral) and pineoblastoma. This relationship highlights the close relationship between these highly aggressive small round blue cell tumors.

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501. Most common cancer to occur in organ transplant patient is?

a) Squamous cell carcinoma

b) Melanoma

c) Lung cancer

d) Colorectal cancer

Correct Answer - A
Answer- A. Squamous cell carcinoma
most common tumors after transplant

- Non melanoma skin cancer (SCC >BCC) (most common)
- NHL (2nd most common)
- Lung carcinoma
- Kaposi's sarcoma
- HCC
- Cervical carcinoma

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502. Hydroxyl ions are destroyed in the body by?

a) Vitamin C

b) Vitamin A

c) Vitamin K

d) Vitamin D

Correct Answer - A
Answer- A. Vitamin C
"Vitamin C and other water soluble compounds, such as uric acid, thiols including glutathione and dihydrolipoic acid and possibly other substances such as metallothionein, serve to defend against hydroxyl radicals. Vitamin E, in contrast, is less effective in eliminating hydroxyl radicals.

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503. Which of the following drugs is not an inhibitor of P - glycoprotein?

a) Quinidine

b) Erythromycin

c) Verapamil

d) Phenobarbitone

Correct Answer - D

Ans. D. Phenobarbitone

[Ref KDT 7Ve p.15]

P-glycoprotein:

- Product of multidrug resistance 1 gene (ABCB1).
- Important role in pharmacokinetics of drugs.
- An ATP-binding cassette (ABC) transporter and is an important factor to limit membrane permeability in several tissues and/or elimination pathways into urine (renal tubles) and bile (liver).

Some drugs are substrate for both CYP3A4 and P-gp. Examples :

- CCBs: Verapamil, diltiazam
- Anticancer drugs: Etoposide, daunorubicin, doxorubicin, paclitaxel, vincrisitine Antimicrobials: HIV protoease inhibitors (indinavir, ritonavir), erythromycin, ketoconazole
- Immunosuppressants: Cyclosporine, tacrolimus, sirolimus.
- Other: Digoxin, fexofenadine, loperamide.

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504. Liposome drug delivery system is used for all except ?

a) Vincristine

b) Amphotericin B

c) Hyoscine

d) Amikacin

Correct Answer - C

Ans. C. Hyoscine

Important drugs with liposome delivery systems:

- Anticancer drugs → Donorubicin, Daunorubicin, vincristine, camptothecin, methotrexate, cisplatin, mitoxantrane
- Antifungal → Amphotericin B, Nystatin
- Antibiotics → Amikacin, Ampicillin, ciprofloxacin, Ribavirin, Ganciclovir, chloroquine
- Others → IL-2, cyclosporin

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505. Tachyphylaxis is seen with which of the following drugs?

a) Pethidine

b) Ephedrine

c) Phenoxybenzamine

d) Phentolamine

Correct Answer - B

Ans. B. Ephedrine

[Ref KDT 7th/e p. 70 & 6th/e p. 68; Laurence 50/e p. 448; Katzung 11 `"/e p. 32]

Tachyphylaxis:

* Rapidly diminishing response to repeated administration of a drug.

Tachyphylaxis may occur due to:

* Down-regulation of receptors
  - When tissues are continuously exposed to an agonist, the number of receptors decreases (down-regulation).
  - It occurs in asthmatics who use 132-agonist bronchodilators excessively.
* Depletion of stored neurotransmitter
  - It is particularly common with indirectly acting sympathomimetics drugs, e.g. amphetamine, tyramine and ephedrine.
  - It is due to depletion of releasable pool of noradrenaline from adrenergic nerve terminals.

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506. Synergestic action is shown by the following drug combinations except?

a) Glibenclamide and metformin

b) Enalapril and hydrochlorthiazide

c) Levodopa and carbidopa

d) Hydrochlorthiazide and triamterene

Correct Answer - D

Ans. D. Hydrochlorthiazide and triamterene

[Ref KDT p. 56]

SYNERGISM:

- When the action of one drug is facilitated or increased by the other, they are said to be synergistic.
- In a synergistic pair, both the drugs can have action in the same direction or given alone one may be inactive but still enhance the action of the other when given together.

Additive drug combination:

- Aspirin + paracetamol - As analgesic/ antipyretic
- Nitrous oxide + halothane - As general anesthetic
- Amlodipine + atenolol - As antihypertensive
- Ephedrine + theophylline - As bronchodilator

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507. Oxidation in biotransformation is ?

a) Functionalization reaction

b) Conjugation reaction

c) Synthetic reaction

d) Felson reaction

Correct Answer - A

Ans. A. Functionalization reaction

[Ref: KDT 7th/e p. 22, 23]

Biotransformation includes 2 types of reaction:

- Phase I/Non synthetic/functionalization reaction: Oxidation, reduction, hydrolysis, cyclization, decyclization.
- Phase H/synthetic/conjugation reactions: Acetylation, glutathione conjugation, glucoronide conjugation (glucuranization), glycine conjugation, methylation, sulfate conjugation (sulfuranation), nucleotide synthesis.

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508. Oxybutynin acts by ?

a) Adrenergic receptor antagonist

b) Muscarinic rece8ptor antagonist

c) Histaminic antagonist

d) Serotonergic antagonist

Correct Answer - B

Ans. B. Muscarinic rece8ptor antagonist

[Ref KDT 7thle p. 113, 117]

Oxybutynin:

- This recently introduced anti muscarinic (muscarinic receptor antagonist) has high affinity for receptors urinary bladder and salivary glands with additional smooth muscle relaxant and local anesthetic properties.
- It is relatively selective for M 1 /M3 subtypes than for M2.

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509. Which of the following drug crosses BBB?

a) Glycopyrrolate

b) Neostigmine

c) Physostigmine

d) All of the above

Correct Answer - C
Ans. C. Physostigmine
[Ref KDT p. 07, 117]

- Physostigmine - Rapidly absorbed from GIT and parenteral sites, penetrates cornea freely and crosses BBB (blood brain barrier).
- Neostigmine - It is a quarternary ammonium compound which is poorly absorbed orally with poor corneal penetration and doesn't cross BBB.
- Glycopyrrolate - It is a potent and rapidly acting anti - muscarinic lacking central effects and is used as a pre-anaesthetic medication.

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510. Which of the following is not true about the action of anticholinergic drugs?

a) Atropine is a CNS depressant

b) Atropine causes mydriasis, abolition of light reflex and cycloplegia

c) Atropine causes bronchoconstriction

d) Atropine can increase the chances of hyperthermia in children

Correct Answer - A:C

Ans. A. Atropine is a CNS depressant & C. Atropine causes bronchoconstriction

[Ref KDT 7iVe p. 113, 114]

Actions of anticholinergic drugs:

- These are opposite of parasympathetic (cholinergic) system.
- Atropine has an overall CNS stimulant action.
- Stimulates medullary centres - vagal, respiratory, vasomotor.
- Depresses vestibular excitation and has antimotion sickness property.
- Abbrevates refractory period of A-V node and facilitates A-V conduction, PR interval is shortened.
- Does not have any consistent or marked effect on BP.
- Used in arrhythmias like AV block and digitalis induced arrhythmia.
- Causes mydriasis due to contraction of circular muscles (constrictor pupillae), abolition of light reflex and cycloplegia (paralysis of accomodation).
- Increases intraocular tension → Contraindicated in glaucoma.
- Causes bronchodilatation and reduced airway resistance, especially in COPD and asthma patients.
- Relaxes urinary bladder, urinary retention may

occur → contraindicated in benign prostate hypertrophy.

- Decreases sweat, salivary, tracheobronchial and lacrimal secretion.
- Decreases secretion of acid, pepsin and mucus in the stomach.

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511. Advantage of glycopyrolate over atropine is ?

a) It is a natural alkaloid

b) It lacks CNS penetration

c) Can be used in OPC poisoning

d) Is more potent

Correct Answer - B
Ans. B. It lacks CNS penetration
[Ref KDT 7thie p. 117]
Glycopyrrolate:

- Quarternary synthetic compound, which is potent and rapidly acting anti muscarinic lacking CNS penetration and central effects.
- Almost exclusively used in pre anaesthetic medication.

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512. Oximes are ineffective in which of the following poisoning :?

a) Organophosphate poisoning

b) Amanita phylloides poisoning

c) Carbamate poisoning

d) Dhatura poisoning

Correct Answer - C

Ans. C. Carbamate poisoning

[Ref KDT 7th/e p. 111 & 6t /e p. 105; Katzung 11thie p. 121]

- Oximes [Pralidoxime 2-PAM, obidoxime and diacetyl-monoxime (DAM)] are used in organophosphate poisoning.
- Oximes acts by reactivating cholinesterase enzyme.
- Ineffective in Carbamates poisoning.
- Pralidoxime is contraindicated in carbamates poisoning, because not only it does not reactivate carbamylated enzyme, it has weak anti-chE activity of its own.
- Most commonly used cholinesterase reactivater.

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513. Which of the following is an example of irreversible carbamate?

a) Ambenonium

b) Galantamine

c) Propoxur

d) Rivastigmine

Correct Answer - C
Ans. C. Propoxur
Irreversible carbamate:

- Carbaryl
- Propoxur

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514. 38 yr old patient with high risk of coronary artery disease risk has hypertention, which of the following antihypertensive drugs will be suitable as a first line treatment for this patient?

a) ACE inhibitors

b) Calcium channel blockers

c) Beta adrenergic blockers

d) Diuretics

Correct Answer - A

Ans. A. ACE inhibitors

- Patient is relatively young hypertensive (38 yrs) with high risk of coronary artery disease, ACE inhibitors/ Angiotensin receptor blocker is the suitable first line therapy for management of hypertention in such patients.

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515. Which of the following is NOT a side effect of amiodarone?

a) Pulmonary fibrosis

b) Corneal microdeposits

c) Photosensitivity

d) Tachycardia

Correct Answer - D
Ans. D. Tachycardia
[Ref: KDT 7"Ve p. 534]

- Amiodarone is a broad spectrum anti - arrhythmic drug which belongs to class III of the anti - arrhythmic drugs.
- Following are the adverse effects -
- Fall in BP, bradycardia and myocardial depression occurs on i.v. injection.

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516. A side effect of loop diuretics is used in ?

a) Post - surgery care

b) Chronic anemia

c) Blood transfusion

d) Oncology/cancer

Correct Answer - D

Ans. D. Oncology/cancer

- Furosemide and other loop diuretics cause hypocalcemia by increasing Ca2+ excretion.
- For the same reason they are used in tumor induced hypercalcemia to reduce serum calcium level.

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517. Why adenosine has a short half life?

a) Spontaneous hydrolysis

b) Uptake in subcutaneous tissue

c) Uptake in RBC and endothelial cells

d) Renal excretion

Correct Answer - C

Ans. C. Uptake in RBC and endothelial cells

[Ref KDT 6thIe p. 518; Katzung 11thie p. 244]

- Adenosine is the DOC for P.S.V.T.
- Administered by rapid i.v. injection either as free base or as ATP.
- Action is very rapid - terminates more than 90% episodes of PSVT within 30 sec.
- Adenosine is very short acting (t. in blood - 10 sec) due to uptake into RBCs and endothelial cells.

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518. Mechanism of action of nicorandil is ?

a) K* channel blocker

b) I(' channel opener

c) Na' channel blocker

d) Cl- channel blocker

Correct Answer - B

Ans. B. I(' channel opener

[Ref: KDT 7th/e p. 540, 552]

- Nicorandil
- This dual mechanism anti - angina drug that activates ATP sensitive K+ channels (potassium channel opener) thereby hyperpolarizing vascular smooth muscle.

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519. Which of the following antiarrhythmic drugs can develop Long QT syndrome?

a) Ibutilide

b) Dofetilide

c) Sotalol

d) All the above

Correct Answer - D

Ans. D. All the above

Proarrhythmic Manifestations of Most Frequently Used Antiarrhythmic Agents:

- Amiodarrone
- Digoxin
- Disopyramide
- Dofetilide
- Dronedarone
- Flecainides
- Propafenone
- Quinidine
- Sotalol

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520. Which of the following is not true about the mechanism of action of digitalis?

a) It binds to the intracellular face of Na' ATPase enzyme

b) There is rise in intracellular Na'

c) It has positive ionotropic action

d) Digitalis action is independent of cardiac innervation

Correct Answer - A

Ans. A. It binds to the intracellular face of Na' ATPase enzyme

[Ref KDT 7th/e p. 496]

Digitalis mechanism of action:

- Digitalis increases the force of contraction by a direct action independent of the innervation.
- Binds to the extracellular face of the Na+ K+ ATPase and inhibits the enzyme causing rise in the intracellular levels of Na+.
- The raised Na+ in turn inhibits the Na+ Ca2+ exchanger and causes rise in intracellular Ca+.
- This raised intracellular Ca2+ is responsible for the positive ionotropic effect.
- Thus, digitalis increases the cardiac contractability and force of contraction.

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521. Which drug inhibits both cyclooxygenase and lipooxygenase?

a) Aspirin

b) Indomethacin

c) Imidazole

d) BW755

Correct Answer - D
Ans. D. BW755
[Ref Biochemistry of eye by Elaine R. Berman p.165]

- Drug - BW 755
- Enzyme inhibited - Cyclooxygenase and lipoxygenase

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522. Drug acting on 5HT4 receptor is ?

a) Loxiglumide

b) Renzapride

c) Atractiloside

d) Metoclopromide

Correct Answer - B
Ans. B. Renzapride
[Ref KDT 7th/e p. 174]
Renzapride:

- Renzapride is a cisapride congener which is a prokinetic drug and it increases the gastrointestinal motility by acting on 5HT4 receptors.
- Renzapride is still more selective for 5HT4 than cisapride.
- It also has lesser propensity to cause cardiac arrhythmias.

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523. Drug of choice for aborting the acute attack of migraine is ?

a) NSAIDs like indomethacin

b) Opioids like morphine

c) Triptans like sumatriptan

d) Glucocorticoids

Correct Answer - C
Ans. C. Triptans like sumatriptan
[Ref KDT 7th/e P. 179]
Treatment and prophylaxis of migraine:
* For aborting an acute attack of migraine, sumatriptan (or any other triptan) is the drug of choice.
  - Other drugs used for treatment are NSAIDs, ergo famine and dihydroergotamine, and intranasal butorphanol.
* For Prophylaxis, Beta-blocker (propranolol) is the drug of choice.
  - Other drugs used for prophylaxis are tricyclic antidepressants (amitriptyline), calcium channel blockers (cinnarizine, verapamil), serotonine antagonists (methysergide, cyproheptadine), MAO inhibitors, and anticonvulsants (valproate, topiramate, gabapentine), fluxetin, onabotulinum toxine A, pepaverine and phenalzine.

524. Rasburicase is an analogue of ?

a) Xanthine oxidase

b) IMP dehydrogenase

c) Adenosine Deaminase

d) Urate Oxidase

Correct Answer - D

Ans. D. Urate Oxidase

- Rasburicase is a recombinant version of urate oxidase.
- The cDNA of Urate oxidase is obtained from Aspergillus flavus and is introduced into Sachhromyces cervicae.
- It is used for reducing urate levels.

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525. Adverse effect of methysergide is ?

a) Metabolic syndrome

b) Endocardial fibrosis

c) Peyronie's syndrome

d) Dry mouth

Correct Answer - B

Ans. B. Endocardial fibrosis

[Ref KDT 7th/e p. 174]

Methysergide

- Chemically related to ergot alkaloids which antagonizes action of 5HT on smooth muscles including that of blood vessels.

Mechanism of action

- Potent 5HT2A/2C antagonist with No a adrenergic or dopaminergic action.

Uses:

- Migraine prophylaxis, carcinoid syndrome and post gastrectomy dumping syndrome.

Adverse effects

- Abdominal, pulmonary or endocardial fibrosis is produced with prolonged use.

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526. Contraindication for the triptans is which of the following?

a) Ischemic heart disease

b) Epilepsy

c) Hepatic failure

d) All of the above

Correct Answer - D
Ans. D. All of the above
[Ref KDT 7th/e p. 179]
Triptans

- These are 5-HTIDAB receptor agonists.
- All triptans can cause coronary vasospasm and are contraindiated in IHD. Other contraindications are hypertension, epilepsy, hepatic or renal impairment and during pregnancy.
- The most important adverse effects are feeling of chest pressure, tightness and pain which may be accompanied by arrhythmia and MI and appear to be due to coronary vasospasm.

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527. Advantage of formoterol over salmeterol is ?

a) It can be used for prophylaxis in asthmatics

b) It has got a faster onset of action

c) It is a short acting beta 2 agonist

d) It also has beta 1 agonistic action

Correct Answer - B

Ans. B. It has got a faster onset of action

[Ref KDT 7Ve p. 224; Goodman Gillman 11thie p. 720]

Formoterol

- It is a long acting selective 132 agonist which acts 12 hours when inhaled. In comparison to saletetrol it has faster onset of action and is used on a regular morning - evening schedule for round the clock bronchodilatation.
- Dose : 12 - 24 pg inhalation twice daily.

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528. Use of PGF 2 a analogues is contraindicated in ?

a) Post partum harmorrhage

b) Glaucoma

c) Bronchial asthma

d) Priapism

Correct Answer - C

Ans. C. Bronchial asthma

[Ref KDT 7th/e p. 185,189] Prostaglandin F 2 a]

- PGF 2a analogues are smooth muscle constrictor which bring about contraction of smooth muscles
- PGF 2a analogue like carboprost is used for post partum haemorrhage
- PGF 2a analogues like latanoprost has been used for glaucoma and is a first line drug for open angle glaucoma.
- It is contraindicated in bronchial asthma as it causes bronchial muscle contraction.

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529. Mechanism of action of Teriparatide is ?

a) Recombinant PTH [rPTH]

b) Recombinant calcitonin

c) Recombinant insulin

d) Recombinant prolactin

Correct Answer - A

Ans. A. Recombinant PTH [rPTH]

Teriparatide

- This is recombinant preparation of 1-34 molecules of amino terminal of human PTH.
- It duplicates all the actions of long (1-84) PTH.
- Diagnostic use: To differentiate pseudo from true hypoparathyroidism: teriparatide is given i v: if plasma calcium level fails to rise, then it is pseudohypoparathyroidism.

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530. Anti-inflammatory actions of corticosteroids are mediated by ?

a) By inhibiting angiogenesis

b) By inhibiting breakdown of phospholipids

c) By increasing vascularity

d) By increasing granulation tissue formation

Correct Answer - B

Ans. B. By inhibiting breakdown of phospholipids

[Ref KDT 7thie p.279]

- Glucocorticoids interfere at several steps in the inflammatory response but the most important overall mechanism appears to be limitation of recruitment of inflammatory cells at the local site and production of proinflammatory mediators like PCs, LTs, PAF through inhibition of phospholipase A.

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531. Which of the following is not an inhalational steroids?

a) Beclomethasone

b) Betamethasone

c) Budesonide

d) Fluticasone acetonide

Correct Answer - B

Ans. B. Betamethasone

[Ref KDT 7Ve p. 290]

- Corticosteroid may be used as inhaled or systemic drugs in asthma.

Inhaled steroids

- These are glucocorticoids with high topical and low systemic activity.
- Commonly used drugs are beclomethasome, budesonide, fluticasone and ciclesonide.
- Inhaled steroids are the most effective anti-inflammatory agents used in asthma.

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532. Which of the following antithyroid medications had the maximum chances of causing agranulocytosis?

a) Carbimazole

b) Clotrimazole

c) Propylthiouracil

d) Methimazole

Correct Answer - C

Ans. C. Propylthiouracil

[Ref KDT 7h/e p.253]

- Propylthiouracil has got maximum chance of causing agranulocytosis. It is mostly reversible.

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533. Mifepristone acts on which receptor?

a) Type A progesterone receptor

b) Estrogen receptor

c) LH receptor

d) Thyroid receptor

Correct Answer - A

Ans. A. Type A progesterone receptor

[Ref KDT 7hle p. 319, 320]

Mifepristone

- It is a potent, 19 - norsteroid.
- It has anti - progestational, significant anti - glucocorticoid and anti - androgenic activity.
- Mifepristone is a partial agonist and competitive antagonist at both A and B forms of progesterone receptor (PR) In the absence of progesterone (anovulatory cycles after menopause) it exerts weak progestional activity and induces predecidual changes.

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534. Pegvisomant is ?

a) Somatostatin antagonist

b) Somatotropin antagonist

c) GH receptor antagonist

d) GH receptor agonist

Correct Answer - C
Ans. C. GH receptor antagonist
[Ref KDT 7th/e p. 238]
Pegvisomant

- This polyethylene glycol complexed mutant GH.
- It binds to GH receptor but does not trigger signal transduction and acts as a GH receptor antagonist.

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535. Drug used for medical management of acromegaly due to small pituitary tumors is?

a) Fulvestrant

b) Pegvisomant

c) Vigabatrin

d) Cabergoline

Correct Answer - B

Ans. B. Pegvisomant

[Ref KDT 7h/e p. 238]

Pegvisomant:

- This polyethylene glycol complexed mutant GH.
- It binds to GH receptor but does not trigger signal transduction and acts as a GH receptor antagonist.
- Approved for treatment of acromegaly due to small pituitary adenomas.

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536. Tibolone is a ?

a) Natural steroidal estrogen

b) Natural non-steroidal estrogen

c) Synthetic steroidal estrogen

d) Synthetic non-steroidal estrogen

Correct Answer - C
Ans. C. Synthetic steroidal estrogen
[Ref KDT 7Ve p. 306, 311]
Synthetic estrogens

- Steroidal → Ethinylestradiol, mestranol, tibolone.
- Nonsteroidal → Diethylstilbestrol, hexestrol, dienestrol.

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537. Tibolone is used for ?

a) Fibroids

b) Endometriosis

c) Hormone replacement therapy

d) Anovulatory infertility

Correct Answer - C

Ans. C. Hormone replacement therapy

[Ref KDT 7thie p. 306, 311]

Tibolone

- It is a 19-norsteroid developed specifically to be used for hormone replacement therapy, which combines estrogenic and progestational properties with weak androgenic activity.
- In a dose of 2.5 mg daily, it suppresses menopausal symptoms and lowere the raised Gn levels. No endometrial stimulation has been noted.
- Urogenital atrophy, psychological symptoms, libido and osteoporosis are improved similar to other forms of HRT.
- Increase in breast cancer risk appears to be less than with combined HRT.
- Weight gain, increased facial hair, and occasional vaginal spotting may be noted.

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538. Danazol acts through :?

a) Increases release of Gn

b) Increases insulin release

c) Inhibition of release of Gn

d) Inhibition of insulin release

Correct Answer - C

Ans. C. Inhibition of release of Gn

[Ref KDT 7th/e p. 301]

Danazole

- It has weak androgenic, anabolic and progestational activity.
- The most prominent action is suppression of gonadotropin (FSH/LH) from pituitary.

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539. Mechanism of action of Voglibose is :?

a) p galactosidase inhibitor

b) 3 lactase inhibitor

c) a glucosidase inhibitor

d) 3 glucosidase inhibitor

Correct Answer - C
Ans. C. a glucosidase inhibitor
[Ref KDT 7th/e p. 277]
Voglibose

- It is a glucosidase inhibitor which prevents breakdown of complex carbohydrates into simpler sugars like glucose.

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540. Metyrosine acts by inhibiting ?

a) Phenolethanolamine N methyl Transferase

b) Phenyl alanine Hydroxylase

c) Tyrosine Hydroxylase

d) Tyrosinase

Correct Answer - C

Ans. C. Tyrosine Hydroxylase

- Metyrosine is a Methyl L-tyrosine
- It is a competitive inhibitor of Tyrosine Hydroxylase
- Tyrosine hydroxylase is the enzyme which converts Tyrosine to Dihydroxyphenylalanine (DOPA). It is the rate limiting enzyme of catecholamine synthesis.

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541. Which of the following oral hypoglycaemic drugs has the longest t 1/2 ?

a) Gliclazide

b) Glimepiride

c) Chlorpropamide

d) Tolbutamide

Correct Answer - C

Ans. C. Chlorpropamide

[Ref KDT 6th le p. 268]

- Tolbutamide is shortest acting sulfonylurea.
- Chlorpropamide is longest acting sulfonylurea and longest acting oral hypoglycemic.
- Nateglinide is shortest acting oral hypoglycemic.
- Tolbutamide, because of shorter duration of action, is safer in elderly and in those prone to hypoglycemia.

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542. All of the following are uses of octreotide except :?

a) Secretory diarrhea

b) Acromegaly

c) Hepatic encephalopathy

d) Bleeding esophageal varices

Correct Answer - C

Ans. C. Hepatic encephalopathy

[Ref KDT 7tVe p. 238]

- Octreotide is a synthetic octapeptide surrogate of somatostatin which is 40 times more potent in suppressing GH and prolactin secretion.
- It is also a weak inhibitor of insulin secretion.

Uses :

- Acromegaly
- Secretory diarrhea associated with carcinoids, AIDS, cancer chemotherapy or diabetes.

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543. Which of the following pairs is correct?

a) Glibenclamide - Na' ATP blocker

b) Biguanides - AMP Kinase activation

c) Vildagliptin - SGLT2 inhibitor

d) Voglibose - DPP4 inhibitor

Correct Answer - B

Ans. B. Biguanides - AMP Kinase activation

[Ref Katzung 11th/e p. 741]

- Biguanide acts as an AMP-activated protein kinase (AMPK) activator.
- Activation of AMPK has a high number of potentially antiatherosclerotic effects, including reducing inflammatory cell adhesion to blood vessel endothelium & reducing lipid accumulation.

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544. Mechanism of action of sulfonylureas is ?

a) Na ATP channel blocker

b) K ATP channel blocker

c) Cl ATP channel blocker

d) Ca ATP channel blocker

Correct Answer - B

Ans. B. K ATP channel blocker

[Ref KDT 7th/e p. 270, 274]

- Sulfonylureas provoke a brisk release of insulin from pancreas.
- They act on the so called "Sulfonylurea receptors" (SUR1) on pancreatic (beta-cell membrane - cause depolarization by reducing conductance of ATP sensitive K. channels.
- This enhances influx of Ca'2-- degranulation.
- They do not cause hypoglycemia in pancreatectomized animals and type 1 diabetes (Presence of at least 30% of functional [3-cells in essential for their action).
- A minor action reducing glucagon secretion by increasing insulin and somatostatin release has been demonstrated.

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545. Nasally acting GnRH analogue is ?

a) Goserelin

b) Triptorelin

c) Nafarelin

d) Leuprolide

Correct Answer - C
Ans. C. Nafarelin
[Ref KDT 7thie p. 242]

- GnRH analogues are used by SC route, however nafarilin and busurelin can be used as intranasal spray.
- GnRH analogues can cause hot flushes, loss of libido and osteoporosis.

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546. Which of the following is/ are side effect/s of growth hormone administration?

a) Pain at injection site

b) Glucose intolerance

c) Hypothyroidism

d) All the above

Correct Answer - D

Ans. D. All the above

[Ref KDT &hie p. 234] Adverse effects of growth hormone

- Somatropin and somatrem are recombinant GH analogues.
- Somatrem has an additional methionine residue and is more immunogenic than somatropin, but allergic reactions or resistance to treatment are not a problem.
- Pain at injection site and lipodystrophy can occur.
- Glucose intolerance, hypothyroidism (due to unmasking of TSH deficiency), salt and water retention, hand stiffiress, myalgias, headache are the possible adverse effects
- Rise in intracranial tension occurs in few cases.

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547. Which of the following drugs halts macrovascular as well as microvascular effects of DM?

a) Acarbose

b) Biguanides

c) Meglitinide

d) Algaliptin

Correct Answer - B

Ans. B. Biguanides

[Ref KDT Th/e p. 276] Biguanides]

* Biguanides like metformin are the 1st line drugs for the treatment of Type 2 DM, which acts by AMPK activation.

* Advantages of Biguanides are as follows,
  - Non hypoglycemic.
  - Promotes weight loss.
  - Prevents macro as well as microvascular complications of DM.

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548. Which of the following are naturally occurring opioid?

a) Di acetyl morphine

b) Ethyl morphine

c) Morphine

d) Pholcodeine

Correct Answer - C
Ans. C. Morphine
[Ref KDT 7"/e p. 474]
Classification of opioids :

- Naturally occurring opium alkaloids :- Morphine, codeine
- Semi synthetic opiates : - Diacetyl morphine (heroin), pholcodeine and ethylmorphine.
- Synthetic opioids :- Pethidine (Meperidine), fentanyl, methadone, dextropropoxyphene, tramadol.

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549. Most potent opioid is ?

a) Butorphanol

b) Pentazocine

c) Sulfentanyl

d) Hdrocodone

Correct Answer - C
Ans. C. Sulfentanyl
[Ref KDT p. 476]
The order of potency of opioids:

- Sufentanil > Fentanyl > Buprenorphine > Hydromorphone, Oxymorphone > Butorphanol > Levorphenol > Oxycodone > Hydrocodone > Nalbuphine, morphine, Methadone > Pentazocine > codeine > Mepridine (Pethidine) > Propoxyphane.

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550. All of the following pairs are correct except ?

a) Peripheral decarboxylase inhibitor - Benserazide

b) MAO - B inhibitor - Clorgyline

c) COMT inhibitor - Entacapone

d) Dopamine facilitation - Amantadine

Correct Answer - B
Ans. B. MAO - B inhibitor - Clorgyline
[Ref: KDT Thle p. 439 & &le p. 439; Katzung 11th/e p. 513]
Note: Clorgyline is a MAO A inhibitor not MAO B.

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551. Which of the following is used for the patient on antiparkinsonian medication levodopa + carbidopa, but patient showing marked on - off effect?

a) Bromocriptine

b) Amatidine

c) Selegeline

d) Rimonabant

Correct Answer - C

Ans. C. Selegeline

[Ref: Harrison 18th/e p. 3326, 3327]

- If there is wearing off (on -off effect) COMT inhibitor or MAO-B inhibitor (selegiline) is added

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552. Which of the following is not true about benzodiazepines?

a) Can produce ataxia

b) Has GABA facilitatory but no GABA mimetic action

c) REM, and Stage 3 and 4 sleep is increased

d) Produces muscle relaxation by action on medulla

Correct Answer - C

Ans. C. REM, and Stage 3 and 4 sleep is increased

Ref: KDT 6th/e p. 394 & 5th/e p. 317, 363]

Mechanism of action of benzodiazepines (BZDs):

- Muscle relaxation is produced by action on medulla.
- Ataxia is due to action on cerebellum.
- BZDs acts on GABAA receptors.

Effect on CNS:

- In contrast to barbiturates, BZDs are not general depressant, but exert relatively selective anxiolytic, hypnotic, muscle relaxant and anticonvulsant effects.
- The antianxiety action of BZDs is not dependent on their sedative property - with chronic administration relief of anxiety is maintained, but drowsiness wanes off due to development of tolerance.
- Stage 2 sleep is increased, while REM, Stage 3 & 4 sleep are decreased.

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553. Which of the following is not true about barbiturate?

a) Shows GABA mimetic action

b) Shows GABA facilitatory action

c) It can depress voltage gated Na·- and IC' channels at high concentrations

d) Limbic system is most sensitive to the depressive action of barbiturates to CNS

Correct Answer - D

Ans. D. Limbic system is most sensitive to the depressive action of barbiturates to CNS

[Ref KDT 7th/e p. 399 & 6th/e p. 391]

Action on CNS:

- Barbiturates act primarily at the GABA - BZD receptor - Cl channel complex and potentiate GABAergic inhibition by increasing the lifetime of Cl- channel opening caused by GABA (Contrast benzodiazepines which enhance frequency of CI channel opening) - GABA facilitatory action.
- Barbiturates depress all areas of CNS, but the reticular activating system is most sensitive.

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554. Which of the following can be used in the management of tardive dyskinesia ?

a) Cessation of antipsychotic medication

b) Baclofen

c) Tetrabenazine

d) All the above

Correct Answer - D

Ans. D. All the above

[Ref KDT 7th/e p. 445, Harrisons 18th/e p. 3333]

Tardive Dyskinesia:

- Commonest of the tardive syndromes and is typically composed of chore form movements involving the mouth, lips, and tongue.
- Atypical antipsychotics (e.g., clozapine, risperidone, olanzapine, quetiapine, ziprasidone, and aripiprazole) are associated with a significantly lower risk of TD in comparison to traditional antipsychotics.
- Treatment primarily consists of stopping the offending agent.
- If the patient is receiving a traditional antipsychotic and withdrawal is not possible, replacement with an atypical antipsychotic should be tried.
- In refractory cases, catecholamine depleters such as tetrabenazine may be helpful. Tetrabenazine can be associated with dose dependent sedation and orthostatic hypotension.
- Other approaches include baclofen (40-80 mg/d), clonazepam (1-8 mg/d), or valproic acid (750-3000 mg/d).

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555. Temazepam is superior to diazepam in ?

a) Longer duration of action

b) Safely used in liver failure

c) No active metabolite required.

d) High hepatic metabolism

Correct Answer - B:C

Ans. B. Safely used in liver failure & C. No active metabolite required.

[Ref KDT 7'/e p. 405]

Temazepam

- Intermediate acting benzodiazepine.
- Its metabolism is independent of liver and hence, can be safely given in patients with hepatic failure.
- Temazepam does not have an active metabolite like diazepam [Note: Diazepam is converted to an active metabolite `desmethyl diazepam' (oxazepam)].

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556. Drug contraindicated in absence seizures is

a) Lamotrigine

b) Clonazepam

c) Tiagabine

d) Ethosuximide

Correct Answer - C

Ans. C. Tiagabine

- Carbamazepine, vigabatrin, and tiagabine are contraindicated in the treatment of absence seizures, irrespective of cause and severity.

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557. Mechanism of action of tianeptin is :?

a) Increase 5HT uptake

b) Decrease 5HT uptake

c) Increase DA uptake

d) Decrease DA uptake

Correct Answer - A

Ans. A. Increase 5HT uptake

[Ref KDT 7th/e p. 447]

Tianeptin

- **Atypical anti - depressant**
- Increases 5HT uptake and is neither sedative nor stimulant.
- Shown efficacy in anxio-depressive states, particularly with psychosomatic symptoms, as well as endogenous depression.
- Side effects include: dry mouth, epigastric pain, flatulence, drowsiness/insomnia, tremor and the bodyache.

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558. Venalafaxine is an FDA approved drug for the treatment of ?

a) Major depression

b) Generalised anxiety disorder

c) Panic disorder

d) All the above

Correct Answer - D

Ans. D. All the above

[Ref Medical basis of psychiatary by S Hossein, p. 79]

Venlafaxine

- It is serotonin and noradrenaline reuptake inhibitors (SNRI), but in contrast to older TCAs it does not interact with cholinergic, adrenergic, histaminergic receptors and does not have sedative property.
- It is faster acting (other faster acting antidepressants are bupropion and mirtazapine).
- It raises the BP (all other antidepressants cause hypotension).
- It is FDA approved for use in major depression, generalized anxiety disorder, and panic disorder.

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559. FDA approved drug for refractory schizophrenia ?

a) Amoxapine

b) Haloperidol

c) Clozapine

d) Penfluridol

Correct Answer - C
Ans. C. Clozapine
[Ref KDT rie p. 441]

- Clozapine is FDA approved drug for resistant schizophrenia
- It reduces the risk of sucidal behavior in younger patients with schizophrenia.

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560. True about anti - Parkinson drug levodopa is :?

a) Levodopa is an active metabolite of dopamine.

b) About 50% of administered levodopa is peripherally converted to carbidopa.

c) About 2% of the administered levodopa crosses blood brain barrier.

d) Levodopa has no role in hepatic coma.

Correct Answer - C

Ans. C. About 2% of the administered levodopa crosses blood brain barrier.

[Ref KDT 7th/e p. 426]

Levodopa:

- Levodopa is inactive by itself, but is the immediate precursor of the neurotransmitter dopamine.
- 95% of the oral dose is decarboxylated in the peripheral tissues.
- About 1 - 2% of the administered levodopa crosses the blood brain barrier to reach the brain, which is taken up by the surviving dopaminergic neurons and converted to dopamine.
- The stimulation of excitatory DI as well as the inhibitory D2 receptors in striatum achieves the same net effect of smoothening movements and reducing muscle tone.
- It produces a non-specific 'awakening' effect in the hepatic coma.

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561. Which of the following is true about ziprasidone?

a) Profound extrapyramidal symptoms

b) Causes weight loss

c) Has anti - depressant properties

d) Safe in cardiac patients.

Correct Answer - C

Ans. C. Has anti - depressant properties

[Ref KDT 7th/e p. 442]

Ziprasidone:

- Atypical anti - psychotic
- It has a 5 H1 + 5HT2 + D2 blocking activity with antagonism at 5HT1D and agonist at 5HT1A.
- Being atypical it is free from extrapyramidal side effects (EPS) and has got good anxiolytic and anti depressant properties.
- It causes mild weight gain and hyperglycemia and causes QTc prolongation and serious cardiac arrhythmias.

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562. Which of the following nephrotoxic drugs should be completely avoided in renal failure?

a) Doxycycline

b) Talampicillin

c) Nitrofurantoin

d) Nalidixic acid

Correct Answer - B:C:D

Ans. B,Talampicillin C.Nitrofurantoin & D.Nalidixic acid

Drugs to be avoided in renal patients:

- Cephalothin
- Talampicillin
- Nalidixic acid
- Tetracyclines (except doxycyline)
- Nitrofurantoin

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563. The typical maintence dose of Leveteracetam is?

a) 10 - 20 mg/ Kg/day

b) 20 - 30 mg/ Kg/day

c) 30 - 40 mg/ Kg/day

d) 40 - 50 mg/ Kg/day

Correct Answer - C

Ans. C. 30 - 40 mg/ Kg/day

[Ref KDT 7hle p. 420]

Levetiracetam

- Unique anti - convulsant which has shown efficacy in refractory partial seizures with or without generalization.

Dosage:

- The recommended starting dose is 10 mg/ Kg/ day given twice daily.
- The dosage can be increased weekly or biweekly by 10mg/ Kg/ day.
- The typical maintenance dose is 30 - 40 mg/ Kg/ day.

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564. Botulinum toxin is used in treatment of ?

a) Axillary hyperhidrosis

b) Blepharospasm

c) Cervical dystonia

d) All of the above

Correct Answer - D

Ans. D. All of the above

[Ref KDT 7th/e p. 99]

- Botulinum toxin A and B are highly potent exotoxins produced by Clostridium botulinum which causes `botulinum' by inhibiting Ach release.
- It is used in treatment of blepharospasm, spastic cerebral palsy, strabismus, spasmodic torticollis, nystagmus, hemifacial spasm, axillary hyperhidrosis, spastic cerebral palsy which is due to cholinergic excess.
- It has also been used for facial wrinkles.

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565. Which of the following antipsychotics show partial D2 agonist activity?

a) Aripiprazole

b) Clozapine

c) Quetiapine

d) Ziprasidone

Correct Answer - A

Ans. A. Aripiprazole

[Ref Goodman 6 Gillman 1 p. 464, 465, 466; Katzung 11'"/e p. 495]

Aripiprazole:

- Only antipsychotic with D2 agonistic activity. (all others are D2 antagonists).
- Longest acting
- It also has 5HT1A agonistic and 5HT2 antagonistic activity - Also known as dopamine-serotinine stabilizer.
- It is least sedating antipsychotic can cause insomnia.

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566. Which drug is given in the pain due to diabetic neuropathy?

a) Lamotrigine

b) Na valproate

c) Gabapentin

d) Morphine

Correct Answer - C

Ans. C. Gabapentin

[Ref KDT 7th/e p. 409]

Gabapentin

- This is lipophilic GABA derivatve.
- Gabapentin enhances GABA release but itself does not act as a agonist at the GABAA receptor.
- It crosses to the brain and enhances GABA release but does not act as agonist at GABAA receptor.
- Gabapentin is considered to be a first line drug for pain due to diabetic neuropathy and postherpetic neuralgia.

Uses

- GTCS and partial seizures
- Pain due to diabetic neuropathy
- Postherpetic neuralgia
- Prophalaxis of migraine

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567. Topical antifungal of choice for aspergillus infection of eye is ?

a) Miconazole

b) Clotrimazole

c) Econazole

d) Fluconazole

Correct Answer - B
Ans. B. Clotrimazole
[Ref Khurana Ophthalmology 4th/e p. 422]
Clotrimazole:

- Fungistatic and is effective against Candida, Aspergillus and many others.
- Its 1 percent suspension is effective topically and is the treatment of choice in Aspergillus infections of the eye.

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568. Which of the following is a topical antifungal agent?

a) Benzyl benzoate

b) Brimetenide

c) Butenafine

d) Posconazole

Correct Answer - C
Ans. C. Butenafine
[Ref KDT 7thie p. 796]
Butenafine:

- Butenafine is a benzylamine congener of the terbinafine, which acts by inhibiting the enzyme squalene epoxidase.
- Used only topically for treatment of dermatophytosis.
- Efficacy in tinea cruris/corporis/pedis is similar to that of terbenafine.

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569. Fastest acting anti malarial drug is ?

a) Chloroquine

b) Quinine

c) Mefloquine

d) Artether

Correct Answer - D
Ans. D. Artether
[Ref Harrisons 18th/e p. 26-2]
Artemisinin derivatives:

- Artesunate, artemether, arteether, and the parent compound artemisinin are sesquiterpene lactones derived from the wormwood plant Artemisia annua.
- These are the fastest acting erythrocytic schizontocide.

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570. Which of the following increases Amphoterecin B induced nephrotoxicity?

a) Vancomycin

b) Cyclosporin

c) Acyclovir

d) All the above

Correct Answer - D

Ans. D. All the above

[Ref Katzung 11th/e p. 836]

- "Aminoglycosides. vancomycin, cyclosporine er other nephrotoxic drugs enhance renal impairment caused by AMB"
- Risk factors for amphotericin B induced nephrotoxicity

Following risk factors increase the chances of nephrotoxicity caused by amphotericin:

- Concomitant use of diuretics.
- Abnormal baseline renal function (kidney diseases)
- Dehydration (volume depletion):- It is a key factor for the renal tolerance of all the potential nephrotoxic drugs. Therefore, all patients should receive 1-2 liters of isotonic saline prior to amphotericin B infusion.
- Concomitant use of nephrotoxic drugs:- Aminoglycosides, vancomycin, cyclosporine, tacrolimus (FK-506), acyclovir, NSAIDS, radio-contrast agents
- Higher average daily dose of amphotericin B.

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571. Erythromycin is used in the treatment of which GIT disorder?

a) Bacillary dysentery

b) Amoebic dysentery

c) Diabetic gastroparesis

d) Ulcerative colitis

Correct Answer - C
Ans. C. Diabetic gastroparesis
[Ref KDT 7h/e p. 753]
Erythromycin:

- Macrolide antibiotic.
- Erythromycin stimulates motilin (an upper gastrointestinal peptide hormone) receptors in the GIT which induces gastric contractions, hastens gastric emptying and promotes intestinal motility without significant effect on colonic motility.
- It has been occasionally used to afford short term symptomatic relief in diabetic gastroparesis, however, undesirable alteration of gut flora limits its use.

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572. Which macrolide is active against Mycobaterium leprae?

a) Azithromycin

b) Roxithromycin

c) Clarithromycin

d) Framycetin

Correct Answer - C

Ans. C. Clarithromycin

[Ref KDT 7th/e p. 754, 780, Harrisons 18thie p.1364-65]

- Clarithromycin is a newer macrolide, which is effective against MAC (Mycobacterium avium complex), atypical mycobacteria and Mycobacterium leprae.

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573. Ivermectin is the drug of choice for which of the following infections?

a) Trichuriasis

b) Onchocerciasis

c) Loiasis

d) Trichinosis

Correct Answer - B
Ans. B. Onchocerciasis
[Ref KDT 7h/e p. 853]
Ivermectin:

- Extremely potent semisynthetic derivative of nematodal principal obtained from Streptomyces avermitilis.
- DOC for single dose treatment of onchocerciasis and strongyloidosis.
- Only oral drug effective against scabies and pediculosis.
- Acts by glutamate gated CI- channel which causes tonic paralysis in nematodes.

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574. Which of the following causes retinal pigmentation?

a) Quinine

b) Chloroquine

c) Mefloquine

d) Atovaquone

Correct Answer - B
Ans. B. Chloroquine
[Ref KDT 7thie p. 823]
Chloroquine:

- 1st line anti malarial drug, which is an erythrocytic schizonticide.
- However, its prolonged use of high doses (as in DLE, rheumatoid arthritis) may cause loss of vision due to retinal damage in the form of retinal pigmentation.
- Cause corneal deposits and affect vision and are reversible on discontinuation.
- Loss of hearing, rashes, photoallergy, myopathy, graying of hair may occur.

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575. Mechanism of action of Linezolid is :?

a) Inhibits 30S ribosome subunit of 50S ribosome

b) Inhibits 23S ribosome subunit of 50S ribosome

c) Inhibits 5S ribosome subunit of 50S ribosome

d) Inhibits 5PS. ribosome subunit of 50S ribosome

Correct Answer - B
Ans. B. Inhibits 23S ribosome subunit of 50S ribosome
[Ref KDT 7111e p. 758]
Linezolid:

- An `oxazole dianones' useful in treatment of MRSA and some VRSA strains
- It acts by inhibiting bacterial protein synthesis by binding to 23S fraction of 50S ribosome.
- Binding of the linezolid distorts the tRNA binding site overlapping both 50S and 30S ribosomal subunits and stops the protein synthesis.
- It is a predominantly bacteriostatic drug.

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576. Which of the following is not true about levamisole?

a) It is the levoisomer of tetramisole

b) It has immunomodulator action

c) It can kill strongyloides larvae and adult worms

d) It is used against ascariasis and ancyclostomiasis

Correct Answer - C

Ans. C. It can kill strongyloides larvae and adult worms

[Ref KDT 7ffile p. 852]

Levamisole, Tetramisole:

- Tetramisole was developed in the late 1960s.
- It is recemic; its levo isomer (levamisole) was found to be more active and is preferred now.
- Both are active against many nematodes, but use is restricted to ascariasis and ancylostomiasis, because action on other worms is poor.
- Strongyloides larvae are killed, but adult worms are not sensitive.
- The ganglia in worms are stimulated causing tonic paralysis and expulsion of live worms.
- Interference with carbohydrate metabolism (inhibition of fumarate reductase) may also be contributing.
- Levamisole is an immunomodulator as well. Levamisole restores depressed T cell function.
- It was once used as a disease modifying drug in rheumatoid arthritis and as an adjunct in malignancies, aphthous ulcers, recurrent herpes but repeated doses produce reactions and now it has been withdrawn.

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577. Which of the following is a side effect of clofazimine?

a) Reddish black skin discoloration

b) Hemolytic anaemia

c) Flu like syndrome

d) Axillary freckling

Correct Answer - A

Ans. A. Reddish black skin discoloration

[Ref KDT 7th le p. 781, 782]

Clofazamine:

- 1st line anti - leprotic drug
- Dye with leprostatic and anti - inflammatory properties.
- Gets accumulated in macrophages and gets deposited in many tissues. Including subcutaneous fat as needle shaped crystals responsible for reddish black skin discoloration.
- Discoloration of skin, hair and body secretions may occur.
- Conjunctival pigmentation may also occur.

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578. Mechanism of action of Niclosamide is :?

a) Inhibition of substrate level phosphorylation

b) Inhibition of oxidative phosphorylation

c) Inhibition of proton efflux pumps

d) Increase production of free radicals

Correct Answer - B

Ans. B. Inhibition of oxidative phosphorylation

[Ref KDT 7th/e p. 854]

- Niclosamide acts by inhibiting oxidative phosphorylation in mitochondria and by interfering with anaerobic generation of ATP.
- It is mainly active against cestodes - T. solium, T. saginata, Diphyllobothrium latum and H. nana.

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579. For systemic mycosis fluconazole is preferred over ketoconazole because of -

a) Greater efficacy

b) Longer t 1/2

c) Lesser side effects

d) All the above

Correct Answer - D

Ans. D. All the above

[Ref KDT &le p. 761]

Imidazoles and Triazoles:

- These are presently the most extensively used antifungal drugs.
- Four imidazoles are entirely topical, while ketoconazole is used both orally and topically.
- Two triazolesfluconazole and itraconazole have largely replaced ketoconazole for systemic mycosis because of greater efficacy, Longer t 1/2, fewer side effects and drug interactions.
- The imidazoles and triazoles have broad spectrum antifungal activity covering dermatophytes, Candida, other fungi involved in deep mycosis (except mucor), Nocardia, some gram positive and anaerobic bacteria, e.g. Staph. aureus, Strep. faecalis, Bac. fragilis and Leishmania.
- The mechanism of action of imidazoles and triazoles is the same. They inhibit the fungal cytochrome P450 enzyme lanosterol 14-demethylase' and thus impair ergosterol synthesis leading to a cascade of membrane abnormalities in the fungus.
- The lower host toxicity of triazoles compared to imidazoles has correlated with their lower affinity for mammalian CYP450 enzymes and lesser propensity to inhibit mammalian sterol synthesis.

- However, because they are active against certain bacteria as well (which do not have ergosterol), other mechanisms of action also appear to be involved.

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580. INH hepatotoxicity is due to which compound?

a) INH acetylhydrazine

b) INH sulfhydrazine

c) INH methylhydrazine

d) All of the above

Correct Answer - A

Ans. A. INH acetylhydrazine

[Ref KDT 7th le p. 767]

- INH is extensively metabolized in liver, most important pathway being N - acetylation by NATZ.
- The rate of INH acetylation shows genetic variation with some being
- Fast acetylators - 30 to 40% patients.
- Slow acetylators - 60 to 70% patients.
- Isoniazid induced peripheral neuritis is more common in slow acetylators.
- Hepatotoxic minor metabolite is produced by CYP2E1 from acetylhydrazine.

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581. What is the effect of co administration of rifampicin and ritonavir in patients suffering from AIDS?

a) Area Under Curve decreased by 15%

b) Area Under Curve decreased by 35%

c) Area Under Curve increased by 15%

d) Area Under Curve increased by 35%

Correct Answer - B

Ans. B. Area Under Curve decreased by 35%

[Ref Kucers: the use of antibiotics 6th edn by M Lindsay Grayson p.1598]

Co administration of ritonavir with rifampicin:

- Recommendation is to use the combination with caution.
- Area under curve decreased by 35%
- There is no change in rifampicin concentration
- It is recommended to monitor the antiretroviral activity of ritonavir

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582. Drug of choice for surgical prophylaxis is :?

a) Cefaclor

b) Ceftizoxime

c) Cefazolin

d) Cefoperazone

Correct Answer - C
Ans. C. Cefazolin
[Ref KDT 7th/e p. 726]

- Cefazolin is the prototype 1st generation cephalosporin that is active against PnG sensitive organisms ie streptowcce, gonococci and group.
- It is the preferred parenteral first generation cephalosporin for surgical peophylaxis.

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583. Vapiprost is a ?

a) Thromboxane receptor antagonist

b) Thromboxane synthetase antagonist

c) PGE 1 analogue

d) PGI 2 analogue

Correct Answer - A
Ans. A. Thromboxane receptor antagonist
[Ref Internet ncbi article]
Vapiprost:

- Novel congener, which is a recently developed thromboxane receptor antagonist.
- It prevents platelet aggregation, prevents thrombus formation and thereby preventing vessel occlusion.
- It is usually used alongwith rt PA like alteplase, renecteplase, tenecteplase.

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584. Treatment of clopidogrel toxicity can be done with ?

a) Whole human blood

b) Platelet transfusion

c) vWf transfusion

d) rFVIIa infusion

Correct Answer - D

Ans. D. rFVIIa infusion

- rFVIIa (Recombinant factor Vila) has been shown to restore thrombin generation in clopidogrel treated blood samples, and shorten thrombin generation lag time in patients who had been treated with aspirin and clopidogrel, and in blood samples treated with clopidogrel's active metabolite.
- Thus they can be used for the management of clopidogrel toxicity induced bleeding i.e. can be used to reverse the effects of clopidogrel.

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585. Why is clopidogrel preferred over ticlopidine?

a) Lower incidence of neutropenia and thrombocytopenia

b) Lower incidence of dyslipidemia

c) Lower incidence of hyperglycemia

d) Lower incidence of postural hypotention

Correct Answer - A

Ans. A. Lower incidence of neutropenia and thrombocytopenia

[Ref KDT 6thie p. 610]

Clopidogrel:

- This newer congener of ticlopidine has similar mechanism of action, ability to inhibit platelet function and therapeutic efficacy, but appears to be safer and better tolerated (CLASSICS study).
- Clopidogrel is safer than ticlopidine as it is less associated with hematological dyscrasias than use of ticlopidine.
- A lower frequency of neutropenia, thrombocytopenia and other bone marrow toxicity compared to ticlopidine has been recorded.
- The clopidogrel as aspirin in patients at risk of ischaemic events (CAPRIE) trial has found clopidogrel recipients to have a slightly lower annual risk of primary ischaemic events than aspirin recipients.

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586. Which of the following antilipidemic drug is a sterol absorption inhibitor?

a) Gemfibrozil

b) Simvastatin

c) Nicotinic acid

d) Ezetimibe

Correct Answer - D
Ans. D. Ezetimibe
[Ref KDT 7th/e p. 635] 3

- Classification of antihyperlipidemic drugs
  HMG CoA reductase inhibitor:
- Statins: Lovastatin, Simvstatin, Pravastatin, Atorvastatin, Rosuvastatin
- Bile acid sequestrants
  Resins: Colestipol, Cholestyramine
- LPL activator/PPAR alpha activator - Clofibrate, gemfibrozil, fenofibrate.
- Sterol absorption inhibitor - Ezetimibe
- Lipolysis & TG synthesis inhibitor - Nicotinic acid

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587. Mechanism of action of Torcetraprib is ?

a) Bile acid sequestrant

b) Sterol absorption inhibitor

c) Lipoprotein lipase activator

d) CETP inhibitors

Correct Answer - D

Ans. D. CETP inhibitors

[Ref: KDT 7h le p. 641]

CETP Inhibitors:

- CETP, i.e., Cholesteryl ester transfer proteins inhibitors are class of cholesterol lowering agents.
- CETP facilitates exchange of CHE with T4 between HDL and chylomicrons, VLDL and LDL which plays an important role in the disposal of HDL associated CH.
- Examples of CETP inhibitors: Torcetrapib & Anacetrapib
- Clinical trials have been performed and torcetrapib was found to increase occurrence of cardiovascular events like angina, MI, heart failure and death.

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588. Most potent H2 antagonist is :?

a) Ranitidine

b) Cimetidine

c) Famotidine

d) Nizatidine

Correct Answer - C

Ans. C. Famotidine

[Ref KDT 7h /e p. 650 & 6th le p. 629; Katzung 1 lth le p. 1070]

H2-receptor antagonists

- Drugs in this group are cimetidine, ranitidine, famotidine, roxatidine, nizatidine and loxatidine.
- Famotidine is the most potent H2 blocker. Famotidine has some inverse agonistic action on H2 receptors.
- All H2-blockers are competitive blockers except famotidine (competitive - noncompetitive) and loxatidine (non competitive).
- H2 blockers are usually given for 6-8 weeks.

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589. Not an adverse effect of cimetidine ?

a) Confusional state, restlessness

b) Gynecomastia

c) Dry mouth

d) Decreased prolactin levels

Correct Answer - D

Ans. D. Decreased prolactin levels

[Ref: KDT 7h/e p. 650]

Cimetidine:

- H2 blocker which has been replaced by new congeners due to its many adverse effects. Following are its adverse effects :
- Well tolerated by most patients: adverse effects occur in < 5%. These are generally mild.
- Headache, dizziness, bowel upset, dry mouth, rashes.
- CNS effects like confusional state, restlessness, convulsions and coma have occurred infrequently in elderly patients, in those with renal impairment, especially with large doses infused

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590. Use of metoclopramide beyond weeks increases the chances of tardive dyskinesia ?

a) 8

b) 12

c) 16

d) 20

Correct Answer - B
Ans. B. 12
[Ref Pharmacology and physiology for anesthesia by Hugh E. Hemmings p. 511]
FDA has issued a black box warning for metoclopramide, given the high isk of developing tardive dyskinesia if metoclopramide use extends beyond 12 weeks.

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591. The two molecules of Aminosalicylate coupled via azo bond form?

a) Mesalazine

b) Olsalazine

c) Balsalazine

d) Sulfasalazine

Correct Answer - B
Ans. B. Olsalazine
[Ref KDT 7h/e p. 684]

- Olsalazine – 2 molecules of aminosalicylate (ASA) coupled by azo bonds.
- Balsalzine 5ASA linked to 4 – aminobenzoyl - (3 alanine.
- Sulfasalazine 5ASA linked to sulfapyridine by azo bond.
- Mesalazine : - pH coated tablet of 5ASA

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592. Natural anticancer drug is ?

a) Paclitaxel

b) Methotrexate

c) Cyclophosphomide

d) All of the above

Correct Answer - A

Ans. A. Paclitaxel

[Ref Goodman & Gilman 11th/e p. 1350-1354; Katzung 1 p. 949]

Antimitotic drugs of natural (plant) sources.

- Vincristine
- Vindesine
- Paclitaxel
- Vinblastine
- Vinorelbine
- Dacetaxel

Other natural anticancer drugs are

- Epipodophyllotoxins (Etoposide)
- Bleomycin
- Anthracyclins (Doxorubicin, daunorubicin)
- Camptothecins
- Mitomycin 'C'
- Actinomycin 'D'

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593. Drug acting on 'S' phase of cycle ?

a) Chlorambucil

b) Methotrexate

c) Vincristine

d) Paclitaxel

Correct Answer - B

Ans. B. Methotrexate [Ref KDT 7"le p. 823]

Cell cycle specific

- They kill actively cycling cell and their site of action is confined to one phase of the cell cycle.

Drugs causing cell cycle specific inhibition are given below :

- G, phase : Vinblastine
- S phase : Mtx, cytarabine, 6-TG, 6-MP, Hydroxyurea, mitomycin
- G2 phase : Bleomycin, etoposide, Daunorubicin, Topotecan
- M phase : Vincristine, vinblastine, paclitaxel, dacetaxel, Ixabepilone, Estramustine.

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594. Mechanism of action of aprepitant is ?

a) RANK ligand inhibitor

b) MMDA antagonist

c) NK 1 receptor antagonist

d) 5 HT3 antagonist

Correct Answer - C

Ans. C. NK 1 receptor antagonist

[Ref Goodman & Gillman's 11`" /e p.1005]

Aprepitant

- Aprepitant is an antiemetic substance that belongs to a class of drugs called substance P antagonists.
- The compound mediates its effect by blocking the neurokinin 1 (NK1) receptor.
- Aprepitant crosses the blood brain barrier.
- Aprepitant is used for chemotherapy induced nausea & vomiting (CINV), and post- operative nausea & vomiting (PONY).
- After absorption aprepitant is bound extensively to plasma proteins (>95%); it is metabolized avidly, primarily by hepatic CYP 3A4 and is excreted in the stools.

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595. Use of HAART is associated with hepatotoxicity approximately what percentage of patients?

a) 10%

b) 20%

c) 30%

d) 40%

Correct Answer - A

Ans. A. 10%

[Ref Harrisons 18th/e p. 2566]

Highly Active Antiretroviral Therapy (HAART):

- Combination antiretroviral therapy (cART), also referred to as highly active antiretroviral therapy (HAART), is the cornerstone of management of patients with HIV infection.
- Indirect hyperbilirubinemia, resulting from direct inhibition of bilirubinconjugating activity by UDP-glucuronosyltransferase, usually without elevation of aminotransferase or alkaline phosphatase activities, occurs in ~10% of patients treated with the protease inhibitor indinavir.

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596. Bendamustine is useful for the management of ?

a) Chronic lymphoid leukemia

b) Colon carcinoma

c) Breast carcinoma

d) Renal carcinoma

Correct Answer - A

Ans. A. Chronic lymphoid leukemia

[Ref Hematology Basic principles and practice by Ronald Hoffman, p. 819]

Bendamustine

- It is a chemotherapy medication used in the treatment of chronic lymphocytic leukemia (CLL), multiple myeloma, and non-Hodgkin's lymphoma.
- It works by interfering with the function of DNA and RNA

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597. Abraxane is a :?

a) Albumin bound docetaxel

b) Globulin bound docetaxel

c) Albumin bound paclitaxel

d) Globulin bound paclitaxel

Correct Answer - C

Ans. C. Albumin bound paclitaxel

[Ref Katzung 11thle p. 1235]

- Abraxane is a novel albumin bound paclitaxel which has got lesser propensity to cause hypersensitivity reactions than paclitaxel.
- Abraxane is use in the treatment of the advanced metastatic breast carcinoma patients.
- Paclitaxel acts by inhibiting microtubulin polymerization and inhibits division of metastatic cells.

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598. Abatacept binds to on T cell surface

a) CD I I

b) CD 20

c) CD 22

d) CD 28

Correct Answer - D

Ans. D. CD 28

[Ref Katzung 11th/e p. 634]

Abatacept

- It is a fusion protein that combines the extracellular domain of the molecule CTLA4 (CD 154) with the Fc portion of a human immunoglobulin.
- It interfere with the interactions between antigen presenting cells and T lymphocytes.
- Therefore, it affects early stages in the pathogenic cascade of event in RA.
- CTLA4 has high affinity for CD 28, when abatacept binds to CD28 on T cell surface, it prevents the second signal from being delivered, thus turning down the T cell response.

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599. Cardiotmdcity is the side effect of :?

a) Bleomycin

b) Topotecan

c) Rubidomycin

d) Procarbazine

Correct Answer - C
Ans. C. Rubidomycin
[Ref KDT 7th/e p. 826]
Anthracycline induced cardiotoxicity

- Rubidomycin and doxorubicin are the anthracycline anti - tumor antibiotics
- They have cardiotoxicity as a adverse effect.
- This can manifest either acutely with ECG changes, arrhythmias and hypotension, which are reversible, or be delayed like CHF.

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600. Tocilizumab acts as an antagonist at which reeptor -

a) IL I

b) IL 2

c) IL 6

d) TNF

Correct Answer - C

Ans. C. IL 6

[Ref Harrisons 18thiedn p. 2750]

- Tocilizumab is a humanized monoclonal antibody directed against the membrane and soluble forms of the IL-6 receptor.
- IL-6 is a proinflammatory cytokine implicated in the pathogenesis of RA, with detrimental effects on both joint inflammation and damage.
- IL-6 binding to its receptor activates intracellular signaling pathways that affect the acute phase response, cytokine production, and osteoclast activation.

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601. Mechanism of action of Basiliximab is ?

a) TNF a inhibitor

b) IL 1 antagonist

c) IL 2 antagonist

d) IL 6 antagonist

Correct Answer - C

Ans. C. IL 2 antagonist

[Ref KDT 7`/e p. 878, 884]

Basiliximab and Daclizumab

- They are highly humanized chimeric monoclonal anti CD 25 antibody which binds to and acts as IL 2 receptor antagonist.
- Combined with other immunosuppressants like azathioprine and MMF to prevent renal and other transplant rejection reactions.
- Plasma t1/2 of Daclizumab is around 3 weeks which is much longer than Basiliximab.

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602. Estramustine is a combination of ?

a) Estradiol + normustine

b) Estriol + normustine

c) Estriol + mechloroethamine

d) Estriol + cyclophosphamide

Correct Answer - A
Ans. A. Estradiol + normustine
[Ref KDT 7thie p. 858, 866]
Estramustine

- Complex of estradiol and nitrogen mustard normustine which has weak estrogenic but no alkalyting property.
- It binds to p tubulin and interferes with its organization of microtubules exerting anti - mitotic action.

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603. Pemetrexed is indicated for use in which of the following?

a) Mesoepithelioma

b) Non small cell lung carcinoma

c) Ewings sarcoma

d) Osteosarcoma

Correct Answer - A:B

Ans. A.Mesoepithelioma & B.Non small cell lung carcinoma

[Ref: KDT 7th/e p. 858, 863]

- Pemetrexed is a newer congener of methotrexate which primarily targets the enzyme thymidylate synthase.
- Uses: In combination with cisplatin, pemetrexed is approved for treatment of mesoepithelioma and non small cell lung carcinoma.

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604. Which of the following is not true about purine antagonists?

a) Azathioprine is used as immunosuppresant

b) Drugs are activated by hypoxanthine guanine phosphoribosyl transferase [HGPRTase]

c) Fludoribine is the drug of choice for CLL

d) Cladarabine is degraded by adenosine deaminase

Correct Answer - D

Ans. D. Cladarabine is degraded by adenosine deaminase

[Ref Katzung IIth/e p. 948]

Purine antagonists

- 6-mercaptopurine (6-MP), 6-thioguanine, fludarabine and cladarabine are purine analogues that are used in cancer chemotherapy.
- Cladarabine is the DOC for Hairy cell leukemia as it is resistant to degradation by adenosine derminase.

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605. Panitumumab is used for which cancer?

a) Colon cancer

b) Lung cancer

c) Breast cancer

d) Osteoclastoma

Correct Answer - A
Ans. A. Colon cancer
[Ref Harrisons 18thie p. 677]
Panitumumab

- It is a monoclonal antibody against EGF receptor. It is used for management of (Colorectal) colon cancer.

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606. Cetuximab is used to treat ?

a) Adamantinoma

b) Basal cell Ca

c) Colorectal Ca

d) Crohn's disease

Correct Answer - C
Ans. C. Colorectal Ca
[Ref KDT 7th/e p. 870, Harrisons 18thie p. 677]
Cetuximab

- Cetuximab is EGF (Epithelial growth factor) receptor antibody, which prevents cell growth, proliferation and metastasis.
- It is approved for Head neck and face squamous cell Ca as adjuvant with cisplatin.
- It is also used for EGF receptor +ve colorectal Ca.

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607. Which of the following is not an adverse effect of cyclophosphamide?

a) Hemorrhagic cystitis

b) Infertility

c) Bone marrow suppression

d) Diabetes insipidus

Correct Answer - D

Ans. D. Diabetes insipidus

[Ref Harrison 17e/e p. 521; Goodman & Gilman 11th/e p. 1326; Katzung 11tVe p. 941]

Toxicity of Cyclophosphamide

- Bone marrow suppression (relative platelet sparing)
- Pulmonary toxicity
- Cardiac (at higher doses)
- Cystitis
- Infertility
- GI Toxicity
- Alopecia
- Teratogenesis

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608. Adverse effect of the imatinib are all except ?

a) Periorbital edema

b) Myalgia

c) Pleural effusion

d) Arthralgia

Correct Answer - D

Ans. D. Arthralgia

[Ref KDT 7th/e p. 870]

- Imatinib is a tyrosine kinase inhibitor, which inhibits PDGF (Platelet derived growth factor) receptor as well.

Uses:

1. CML - Chronic myeloid leukemia
2. DOC for c-kit +ve GIST (Gastrointestinal Stromal Tumor)

Adverse effects :

- Abdominal pain, vomiting, fluid retention, pleural effusion, periorbital edema, myalgia, liver damage and CHF.

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609. Defect in discriminating blue green vision is due to which drug :?

a) Alprostadil

b) Primaquine

c) Sildenafil

d) Primaquine

Correct Answer - C
Ans.C. Sildenafil
[Ref KDT 7thle p. 303 - 304]

- Sildenafil (Viagra) acts to increase cGMP by inhibiting its breakdown by phosphodiesterase isoform 5 (PDE-5).
- Recommended that at least 6 hours pass between use of a nitrate and the ingestion of sildenafil.
- Sildenafil also has effects on color vision, causing difficulty in blue-green discrimination.
- Two similar PDE-5 inhibitors, tadalafil and vardenafil, are available.

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610. Racecadotril is used for?

a) Chronic diarrhea

b) Acute secretory diarrhea

c) Chronic constipation

d) Diabetic gastroparesis

Correct Answer - B

Ans. B. Acute secretory diarrhea

[Ref: KDT 7th/e p.686]

- Racecadotril is rapidly converted to thiorphan, an enkephalinase inhibitor which prevents the degradation of encephalin (ENK) which are mainly 8 opioid receptor agonists.
- It decreases intestinal hypersecretion without affecting motility and used for short term treatment of acute secretory diarrhea.

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611. True about trientene is :

a) It is the drug of first choice in wilsons disease

b) It is more potent curiuretic agent than penicillamine

c) Trientine therapy can cause iron deficiency

d) Trientine cannot be given orally

Correct Answer - C

Ans. C. Trientine therapy can cause iron deficiency

[Ref Harrisons 18thie p. 3189]

Penicillamine Vs trientine in wilson disease

- Penicillamine is the drug of choice for treatment of wilson's disease.
- However, the drug produces undesirable side effects and in some patients become intolerable.
- Trientine is indicated especially in patients who are intolerant to penicillamine.
- Trientine is less potent cupriuretic agent than penicillamine.
- Trientine is orally effective and short acting.
- Trientine may cause iron deficiency; this can be overcome with short course of iron therapy but iron and trientine should not be ingested within 2 hours of each other.

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612. Which of the following drugs is associated with priapism?

a) Hydralazine

b) Prazocin

c) Resperidone

d) All the above

Correct Answer - D

Ans. D. All the above

Drugs that may cause priapism:

- Anticoagulants
- Haloperidol
- hydralazine
- Nifedipine
- Olanzapine
- Papaverine
- Phenothiazines
- Phentolamine
- Prazosin
- Risperidone
- Trazodone

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613. Which of the following is a Cl- channel activator?

a) Lubriprostone

b) Nefazodone

c) Varenioline

d) Valethamate

Correct Answer - A

Ans. A. Lubriprostone

[Ref Harrisons 18th/e p. 2500]

Chloride Channel Activators

- Lubiprostone is a bicyclic fatty acid that stimulates chloride channels in the apical membrane of intestinal epithelial cells.
- Chloride secretion induces passive movement of sodium and water into the bowel lumen and improves bowel function.
- Lubiprostone is a new class of compounds for treatment of chronic constipation with or without IBS.

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614. Which drug is used in the treatment of Type I tyrosinemia?

a) Nitisinone

b) Alogliptin

c) Pemoline

d) Milrinone

Correct Answer - A
Ans. A. Nitisinone
[Ref Nelson 20'Ve p. 641]

- A diet low in phenylalanine and tyrosine can slow but does not halt the progression of the condition.
- The treatment of choice is nitisinone, which inhibits tyrosine degradation at 4-HPPD. This treatment prevents acute hepatic and neurologic crises.
- Although nitisinone stops or greatly slows disease progression, some pretreatment liver damage is not reversible.

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615. Modafinil is a drug used in which of the following conditions?

a) Premature ejaculation

b) Premenstrual syndrome

c) Shift work disorder

d) Erectile dysfunction

Correct Answer - C
Ans. C. Shift work disorder
[Ref KDT 7th/e p. 487]
Modafinil

- It is a newer psychostimulant popular with night shift (call centre) workers and people who want to improve alertness and keep awake.
- It is claimed to increase attention span, and improve accuracy compromised by fatigue and sleepiness.
- The approved indications are narcolepsy, sleep apnea syndrome and shift work disorder.

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616. Acamprostate is used for ?

a) Alcohol abstinence

b) Nicotine abstinence

c) Opioid abstinence

d) Cocaine abstinence

Correct Answer - A

Ans. A. Alcohol abstinence

[Ref KDT 7th/e p. 393]

- Acamprosate is a weak NMDA receptor antagonist with modest GABAA receptor agonistic activity used for maintenance of alcohol abstinence.
- It has also been found to reduce relapse of drinking behavior.
- It is started immediately after alcohol withdrawal and given at a dose of 666 mg 2 - 3 times a day.
- Loose motion is the most common side effect.

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617. If a woman is assaulted by her husband then he is charged under:
FMGE 11

a) Sec. 498-A IPC

b) Sec. 304-A IPC

c) Sec. 304-B IPC

d) Sec. 504 IPC

Correct Answer - A
Ans. Sec. 498-A IPC

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Punishment for criminal abortion for the women who gives consent and the performer are covered under IPC section ?

a) 312

b) 313

c) 314

d) 315

Correct Answer - A
Ans. is 'a' i.e., 312
Punishment for performing criminal abortion with the consent of women; both for the women and performer is included in IPC Section 312.

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619.

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Adultery is described under which section of IPC?

a) 314

b) 375

c) 497

d) 504

Correct Answer - C
Ans. is c' i.e., 497 [Ref Women and the Law p. 167]
Section 497 of IPC says, "Whoever has sexual intercourse with a person who is and whom he knows or has reason to believe to be the wife of another man, without the consent or connivance of that man, such sexual intercourse not amounting the offence of rape, is guilty of the offence of adultery and shall be punished.

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620.

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Use of dangerous weapon is related to which section of IPC?

a) 304

b) 319

c) 322

d) 324

Correct Answer - D
Ans. is 'D' i.e., 324
319 IPC : **Defines hurt.**
320 IPC : **Defines grievous hurt.**
321 IPC : Voluntarily causing hurt.
322 IPC : Voluntarily causing grievous hurt.
323 IPC : Punishment for voluntarily causing hurt (no provocation, no dangerous weapon) (1 years imprisonment).
324 IPC : **Punishment for voluntarily causing hurt by dangerous weapon** (3 years imprisonment ± fine).
325 IPC : **Punishment for voluntarily causing grievous hurt** (no provocation, no dangerous weapon) (7 years imprisonment ± fine).

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Grievous hurt comes under which section of IPC?

a) Section 319

b) Section 320

c) Section 324

d) Section 326

Correct Answer - B
Section 320
REF: Textbook of Forensic Medicine and Toxicology by Nagesh Kumar Rao Page 259
Section 320: Grievous hurt
The following kinds of hurt only are designated as "grievous"
1. Emasculation
2. Permanent privation of the sight of either eye
3. Permanent privation of the hearing of either ear
4. Privation of any member or joint
5. Destruction or permanent impairing of the powers of any member or joint
6. Permanent disfiguration of the head or face
7. Fracture or dislocation of a bone or tooth
8. Any hurt which endangers life or which causes the sufferer to be during the space of twenty days in severe bodily pain, or unable to follow his ordinary pursuits.

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Outraging modesty of women is which section of IPC?

a) 375

b) 354

c) 195

d) 304

Correct Answer - B

Ans. is 'b' i.e., 354 [Ref Reddy 26th/e p. 365]

Rape and other sexual offences and assault

- 228 IPC : Prohibits disclosure of identity of rape victim.
- 375 IPC : Defining rape.
- 376 IPC : Punishment for rape (7 years to life imprisonment ± fine).
- **376-A** IPC : Punishment for marital rape (2 years imprisonment ± fine).
- 377 IPC: Unnatural sexual offences (10 years to life imprisonment ± fine).
- **354** IPC : **Assault or criminal force to woman with intent to outrage her modesty.**
- **366-A** IPC : Procuration of minor girl for illicit intercourse.
- 351 IPC : Defines assault.
- 352-358 IPC : Punishment for causing assault.
- 509 IPC : Word, gesture or act intended **to** insult the modesty of a women

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623.

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Section 89 IPC is for?

a) Criminal responsibility of insane

b) Criminal responsibility of a child

c) Criminal responsibility of drunken person

d) Age for consent

Correct Answer - B

Ans. is' i.e., Criminal responsibility of a child

89 IPC: A child under 12 years of age can not be given valid consent to suffer any harm which can occur from an act done in good faith for the benefit of the child, e.g., consent for surgery. The only guardian can give such consent.

An act is done in good faith for the benefit of a child or insane person, by or by consent of the guardian.

Nothing which is done in good faith for the benefit of a person under twelve years of age, or of unsound mind, by or by consent, either express or implied, of the guardian or other person having lawful charge of that person, is an offence because of any harm which it may cause, or be intended by the doer to cause or be known by the doer to be likely to cause to that person

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624. A person is declared dead if he/she is not found for

a) 7 years

b) 10 years

c) 14 years

d) 21 years

Correct Answer - A

Ans. is 'a' i.e.,7 years [Ref Civil Law, Section 108 MA]

The Indian Evidence Act, under section 108 provides 7 years from the date whence a person is declared to be missing and his

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Adulteration of drug is under which section of IPC

a) 271

b) 272

c) 273

d) 274

Correct Answer - D
Ans. is 'd' i.e., 274 ***[Ref Safety Management of Hospitals p. 315; Principles of FMT, Bardale p. 18]***
Law related to Adulteration :- Indian Penal Code ***:?***
Section 272 → Adulteration of Food or Drink Intended for Sale Imprisonment for 6 months, Fine - Rs. 1000 Section 273 → Sale of Noxious Food or Drink
Imprisonemnt for 6 months, fine - Rs. 1000 Section 274 → Adulteration of Drugs
Section 275 → Sale of aduletrated drugs
Section 276 → Sale of drugs as a different drug or preparation
Section 277 → Fouling water of public spring or reservoir

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626. Minimum age for giving consent for organ donation in India is?

a) 16 years

b) 18 years

c) 21 years

d) No age limit

Correct Answer - B

A legal age of 18 years has been set to consent for termination of pregnancy (MTP Act 1971), donation of blood and donation of organs (Transplantation of Human Organ Act 1994).

As per Transplantation of Human Organs Act 1994 "donor" means any person, not less than eighteen years of age, who voluntarily authorizes the removal of any of his organs for therapeutic purposes under subsection (1) or sub-section (2) of section 3.
Parents or Guardians consent will be required for any individual below 18 years wishing to donate an organ.

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627. First carpal bone to appear is?

a) Trapezium

b) Capitate

c) Pisiform

d) Lunate

Correct Answer - B

Ans. is 'B' i.e., Capitate *[Ref Reddy's Essentials 26th/e p. 63]*

The ossification centres in carpal bones appear as follows :

n Capitate	1 year	n Hamate	2 years
n Triquitrum	3 years	n Lunate	4 years
n Scaphoid and trapezoid	5 years	n Trapezium	6 years
n Pisiform	11 years		

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628. Four carpal bones are present at what age:
DNB 09

a) 3 years

b) 4 years

c) 5 years

d) 6 years

Correct Answer - B
Ans. 4 years

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629. Ossification centre of scaphoid appears at

a) 1-6 months

b) 1 to 2 years

c) 2 to 4 years

d) 4 to 6 years

Correct Answer - D
Answer- D. 4 to 6 years

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630. Holograph will is defined as

a) Doctor dictates and written by relatives

b) Testator is written in his own handwriting

c) Testator is dictated and written by relatives

d) Testator is dictated and written by doctor

Correct Answer - B

Ans. is 'b' i.e.,Testator is written in his own handwriting *[Ref SK Singhal 4th/e* p. *314]*

- Holograph will is one which is written by the testator in his own handwritting.
- Testamentary capacity is defined as the capacity of a person to make a valid will.

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631. Subpubic angle is :

a) <65°

b) 65-75°

c) 85°

d) 110-120°

Correct Answer - C
85°

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632. Obtuse angle of mandible is seen in

a) Infancy

b) Adulthood

c) Adult Male

d) Adult Female

Correct Answer - A

Ans. is 'a' i.e., Infancy *[Ref Parikh 6th Ie* p. *2.30]*

Feature	Infancy	Adult	Old age
Angle of mandible	Obtuse angle	Right angle	Obtuse angle
Mental foramen opening	Near lower border	Midway b/w upper	Looks apparently nearer the of body & lower border upper border d/t loss of teeth

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633. Size of the fetus is 20 mm, then by the rule of Hasse's, what is the gestational age of the fetus?

a) 2 weeks

b) 4 weeks

c) 6 weeks

d) 8 weeks

Correct Answer - C

Ans. is 'c' i.e.,6 weeks

- Hess's rule (Haase's rule): It is a rough method for calculating the age of fetus by measuring the length from crown to heel. Up to 5^{th} month of gestation, length of the foetus in cm is square of the month of gestation and beyond 5 months, length in cm is 5 times the month of gestation.
- Length in cm = (month of pregnancy) → upto 5 months
- Length in cm = month of pregnancy → after 5 months
- In this question :
- Length in cm = (month of pregnancy)2
- 2 = (month of pregnancy) → (Note : 20mm = 2cm)
- Month of pregnancy = 14 months or 6 weeks.

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634. First incisor to erupt is

a) Lower central

b) Upper central

c) Lower lateral

d) Upper lateral

Correct Answer - A

Ans. is 'a' i.e.,Lower central *[Ref Reddy 30th ie p. 60]*

- First temporary tooth to upper (in primary dentition) is lower central incisors and last temporary tooth to erupt is2nd molar. The sequence of eruption is lower central incisor > upper central incisor > upper lateral incisor >lower lateral incisor > I" molar > Canine > molar. Therefore eurption of temporary teeth is completed by eruption of 2"° molar at 25 months (2 years).
- First permanent tooth to erupt (in secondary dentition) is 1" molar and last to erupt is 3rd molar. The sequence of eruption is 1" molar > central incisor > lateral incisor > 1" premolar > 2" premolar > canine > 2" molar > 3rd molar. Eruption of permanent teeth is completed by eruption of 3rd molar between 17-25 years.

635. **A baby has stated to get his first milk teeth. His age is approximately:**

a) 3 months

b) 6 months

c) 9 months

d) 12 months

Correct Answer - B

Most babies have their first primary (milk) teeth erupt at age 6 month of age and first secondary teeth erupt at age 6 years.

The teeth in the upper jaw erupt earlier than those in the lower jaw, except for lower central incisors. The lower central incisors appear, commonly, between the ages of 5 and 8 months. The upper central incisors appear a month later and the lateral incisors usually within the next three months. The first molar teeth appear around the age of 12-15 months, preceding the eruption of canine teeth by 6 months, which appear between the age of 18 and 21 months. The second molars are out at the age of 21 to 24 months.

Note: Permanent teeth eruption is in the following order: 1st molar - 6 years; central and lateral incisors - 6-8 years; canines and premolars - 9-12 years; second molars - 12 years; third molars - 18 years or later.

Ref: Ghai Essential Pediatrics by O P Ghai, 6th edition, Page 6 ; Nelson Textbook of Paediatrics 17th edition page 18 & 37

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636. X-ray of choice for age detection at around 16-17 years of age

a) Elbow

b) Wrist

c) Shoulder

d) Pelvis

Correct Answer - B

Ans. is 'b' i.e., Wrist ***[Ref Parikh 6th/e p. 2.10]***

Site	**Age (in years)**	
	Female	**Male**
Elbow	13-14	15-16
Wrist	16-17	18-19
Shoulder	17-18	19-20
Crest of ilium	18-19	20-21

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637. Rigor mortis occurs due to:
September 2008

a) Muscle of the body began to relax

b) Capillo-venous distension in the most dependent body parts

c) Muscle of the body began to stiffen

d) Mummification of the body tissues

Correct Answer - C
Ans. C: Muscle of the body began to stiffen
A few hours after the death, the joints of the body stiffen and become locked in place. This stiffening is called *rigor mortis.*
Depending on temperature and other conditions, rigor mortis lasts approximately 24- 48 hours in winter and 18-36 hours in summer.
The phenomenon is caused by the skeletal muscles partially contracting. The muscles are unable to relax, so the joints become fixed in place Rigor mortis can be used to help estimate time of death.
The onset of rigor mortis may range from 1-2 hours, depending on factors including temperature (rapid cooling of a body can inhibit rigor mortis, but it occurs upon thawing). Maximum stiffness is reached around 12-24 hours post mortem. It first starts in involuntary muscles (myocardium)
Eyelids, neck and jaw muscles are affected first, with the rigor then spreading to other parts of the body.
The joints are stiff but after some time general tissue decay and leaking of lysosomal intracellular digestive enzymes will cause the muscles to relax.

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638. Post mortem lividity is not seen in ?

a) Drowning in well

b) Drowning in a fast flowing river

c) Postmortem submersion

d) Drowning in chlorinated swimming pool

Correct Answer - B

Ans. is 'b' i.e., Drowning in a fast flowing river *[Ref Parikh 6th/e p.3.10]*

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639. Post mortem staining gets fixed after :

a) 2-3 hrs.

b) 3-4 hrs.

c) 5-6 hrs..

d) 7-8 hours

Correct Answer - D
D i.e. 7-8 hours

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640. Suggilation is due to which of the following?

a) Gravity leading to pooling of blood

b) Escape of blood from microvasculature

c) Molecular death leading to stiffening of muscles

d) Autolysis of enzymes

Correct Answer - A

Ans. is 'a' i.e., Gravity leading to pooling of blood *[Ref Reddy 30th/e p. 141]*

Gravity leading to pooling of blood → Suggilation

Molecular death leading to stiffening of muscles → Rigor Mortis

Autolysis of enzymes → Putrefaction

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641. Earliest sign of fetal death -

a) Spalding sign

b) Robert's sign

c) Ball sign

d) Adipocere formation

Correct Answer - B

Ans. is 'b' i.e., Robert's sign ***[Ref Parikh 6th le p. 5.75, 5.76 & 4th/e p. 268]***

Robert sign (gas in great vessels) → 12h

Spalding sign (overlapping of skull bones) → 1 week

Blair-Hartley/Ball sign (hyperflexion/hyperextension → 3-4 weeks of spine with overcrowding of ribs

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642. First sign of maceration is

a) Robert's sign

b) Skin slippage

c) Spalding sign

d) Greenish discoloration of body

Correct Answer - B

Ans. is 'b' i.e., Skin slippage [Ref Parikh 6"Ve p. 5.75; SK Parikh 4th/e p. 268]

- Maceration is a process of aseptic autolysis.
- It occurs when a dead fetus remains in the uterus for 3-4 days surrounded by liquor amnii but with exclusion of air.
- Skin slippage is the earliest sign (occurs within 12 hours).

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643. Which is the best temperature for putrefaction?

a) - 10 degrees C

b) 0 degrees C

c) 30 degrees C

d) 50 degrees C

Correct Answer - C

Ans. is 'c' i.e., 30 degrees C [Ref Reddy 30th/e p. 150]

- Putrefaction is the last stage in resolution of body from the inorganic to organic state and is a certain sign of death.

The putrefaction is due to :

Autolysis :

- The enzymes of the body, break down the dead body causing proteolysis, lipolysis and glycolysis.

Bacterial enzymes :

- Aerobic and anaerobic bacteria present in small intestine (e.g. C. welchii, staphylococcus, E.coli etc.) release enzymes (especilly lipase and lecithinase), which act on body to cause breakdown.
- Three conditions are necessory for putrefaction : (i) warmth (10-45°), (ii) moisture (humidity) and (iii) air. If air is absent, adipocere formation (saponification) occurs, and in the absence of moisture, mummification occurs.

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644. According to Casper's dictum, decomposition is the fastest when the body is in which of the following?

a) Air

b) Water

c) Earth

d) Soil

Correct Answer - A

Ans. is 'a' i.e., Air *[Ref Reddy 30thie p. 155]*

- It is the effect of medium (in which body lies) on rate of putrefaction. Casper's dictum states that a body decomposes in air twice as rapidly as in water and eight times as rapidly in earth.

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645. Enzyme responsible for postmortem hemolysis is

a) Hemolysin

b) Lecithinase

c) Lipoproteinase

d) Protease

Correct Answer - B

Ans. is 'b' i.e., Lecithinase *[Ref Textbook of FMT by Vij 5th/e p. 89]*

- Bacteria produce a large variety of enzymes that act on carbohydrates, proteins and fats and break down the various tissues.
- One of the most important enzymes is the lecithinase' produced by the Clostridium welchii, which hydrolyses the lecithin
- present in all the cell membranes including blood cells and thus is responsible for producing hemolysis of blood postmortem.
- This enzyme also helps in postmortem hydrolysis and hydrogenation of body fat.

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646. Mummification is enhanced by ?

a) Moist and hot air

b) Moist and cool air

c) Dry and hot air

d) Dry and cool air

Correct Answer - C

Ans. is 'c' i.e., Dry and hot air

Mummification

It is a *modification of putrefaction,* which occurs in the *absence of moisture.* That is when there is *excess air and warmth but no moisture (humidity),* i.e. hot dry and windy climate, mummification takes place in place of normal putrefaction. Thus mummification occurs in *deserts,* especially in summer and also in bodies buried in *shallow grave in sandy soil.*

Mummification is characterized by dessication or drying of the dead body. There is *drying, dehydration and shriveling of dead body.* It proceeds from exterior to interior. Therefore first *to be involved is skin,* especially of exposed body parts like *lips, nose tip, hands (fingers) and feet (toes).* The skin is shrunken, contracted, dry, brittle, leathery, streched across bony prominences and rusty brown to black in color. Internal viscera also dry up, darken in color and blend with each other to form a single mass. Body emits smell like rotten cheese. Facial features and injuries are well preserved, thus identification of body and cause of death can be determined (like adipocere formation).

Time required for mummification varies between 3 months - 2 years. If properly preserved, a mummified body can remain for years. Chronic arsenic or antimony poisoning favor mummification.

Medicolegal importance : **(i)** Identification of body (facial features are preserved), (ii) cause of death (injury marks are preserved), (iii) time since death can be estimated.

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647. Postmortem wound best differs from the antemortem wound by :

a) Gaps on incising

b) No clots

c) Absence of erythema and cellular changes

d) All

Correct Answer - C
C i.e. Absence of erythema ***&*** cellular change

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648. Pugilistic attitude is characteristically seen in ?

a) Burns

b) Drowning

c) Electrocution

d) Hanging

Correct Answer - A
Ans. is 'a' i.e., Burns

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649. Treatment of choice for stab injury caecum ?

a) Caecostomy

b) Ileo-transverse anastomosis

c) Transverse colostomy

d) Sigmoid colostomy

Correct Answer - B
Ans. is 'b' i.e., ileo-transverse anastomosis
Stab and low-velocity injuries to the colon with minimal contamination and hemodynamical stability can be managed by primary repair mechanisms like ileotransverse anastomosis.

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650. Gun powder on body and clothing can be visualized by?

a) Harrison and Gilroy test

b) Neutron activation analysis

c) Dermal nitrate test

d) All of the above

Correct Answer - D

Ans. is 'd' i.e., All of the above [Ref Parikh ele p. 4.39]

Tests used in firearm discharge :

- Based on detection of nitrate : Dermal nitrite (Paraffin) test.
- Based on detection of heavy metal : Harrison and Gilroy test, neutron activation analysis, Atomic obsorption spectroscopy, and flameless atomic absorption spectroscopy**.**

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651. Bullet fixed from a gun is not released. It is ejected out with subsequent shot. Such a bullet is called as

a) Tandem bullet

b) Dum - dum bullet

c) Inceridiary bullet

d) Tumbling bullet

Correct Answer - A

Ans. is 'a' i.e., Tandem bullet [Ref SK Singhal 4thle p. 188]

Varieties of bullets are :-

i) Incendiary (igniting) bullet :

- The tip of bullet contains self igniting material e.g. barium nitrate and powdered aluminium and magnesium (in the past, phosphorus was used), so that it catches fire on hitting the target. It is used to cause fire in usually inflammable targets like fuel tanks (of air crafts etc).

ii) Explosive bullet :

- The tip contains a detonator or lead azide, so that the bullet explodes on hitting the target.

iii) Dum-dum bullet (expanding bullet):

- It is a jacketed bullet with is nose tip chiseled or cut off It is designed to increase in diameter and expand upon striking the target, thus producing larger diameter wounds of limited penetration.

iv) Tandem bullet (Piggey tail bullet) :

- It is called one-behind-other bullet because two bullets are ejected one after the other, when first bullet failed to leave the burrel and is ejected by subsequently fired bullet.
- Therefore, both enter body through same enterance wound (some

times, they may enter through different entries), but the wounds of exit are always two.

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652. Which of the following causes maximum damage?

a) Tandem

b) Dumdum

c) Souvenir

d) Piggy

Correct Answer - B

Ans. is 'b' i.e., Dumdum *[Ref SK Singhal e/e p. 188]*

- Expanding bullets, also known as hollow-point bullets or "dum-dums", are designed to "mushroom" upon entering a target in order to stop it from leaving the body. Compared to regular bullets, or full metal jack ammunition, expanding bullets are intended to cause maximum tissue damage.

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653. A bullet packed with jacket and opens at a base is called

a) Dum dum bullet

b) Tandem bullet

c) Duplex bullet

d) Souvenir bullet

Correct Answer - A
Ans. is 'a' i.e., Dum dum bullet *[Ref Parikhp. 4.33]*

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654. Ricochet bullet is

a) Bullet producing a key hole entry wound

b) Bullet with nose tip chiseled off

c) Deviation in the direction or path of bullet

d) Bullet containing igniting material

Correct Answer - C

Ans. is 'c' i.e., Deviation in the direction or path of bullet *[Ref Reddy 30th/e p. 211]*

Ricochetting of bullet is defined as deviation in the direction or path of bullet because of striking of bullet to an intermediary object.

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655. Compound used as primer in weapon is

a) Potassium chlorate

b) Sulphur

c) Potassium nitrate

d) Nitrocellulose

Correct Answer - A

Ans. is 'a' i.e., Potassium chlorate [Ref Parikh 6th/e p. 4.29] Cartridge (round)

Cartridge is the ammunition used in firearms. Cartridge consists of (i) Cartridge case, (ii) Propellant (gun powder), (iii) Projectile (missile) and (iv) Wads (only in shot guns.).

1) Cartridge case

- It is the outer shell or covering of the cartridge. In shotgun it is cylinderical. Base is of brass and rest of it is of cardboard or plastic. In rifled weapons, it is tapering and whole of it is made of brass or steel.
- Center of base has percussion cap (detonator cap) which has sensitive composition, i.e. primer, consisting of potassium chlorate, antimony sulphide, mercury fulminate, barium nitrite, lead peroxide or tetrazene.
- In all weapons, after firing, the cartridge case remains in the barrel and it is to be taken out manually (shotgun, revolvers, rifle) or it is ejected out automatically, e.g. in pistals.

2) Propellent (gun powder)

- It propels the projectile (missile) forward. It is composed of black powder or smokeless powder in the form of grains, pellets, thin cylindrical cords or flakes. Its ignition results in formation of expanding hot gases under pressure which (gas pressure) propels

the projectile (missile) by providing it necessary muzzle velocity and striking energy.

- The classical gun powder is known as black powder, consists of charcol (15%), Sulphur (10%), and potassium nitrate (75%). Depending on fineness, the black gun powder is designated as FG, FFG, FFFG. etc. (F = fineness). Pyrodex is another gun powder with same components, but with different ratios.
- Black gun powder produces smoke, i.e. It is smoke producing powder. Smokeless powder, in addition to black powder, has nitrocellulose (single base), or nitrocellulose plus nitroglycerine (double base), or nitrocellulose plus nitroglycerine plus nitroguanidine (triple base). Semi smokeless powder has 80% black powder and 20% smokeless

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656. Destructive power of bullet is determined by all except

a) Velocity of bullet

b) Weight of bullet

c) Shape of bullet

d) Kinetic energy

Correct Answer - C

Ans. is 'c' i.e.,Shape of bullet [Ref Reddy 29th le p. 194]

- Tissue damage (or destructive power of bullet) is dependent on striking (kinetic) energy of bullet, which is proportional to its mass and square of velocity (KE = '/2 mv^2). So modern bullets are designed to have smaller mass allowing transportation of large amount of ammunition and high velocity, as velocity is more important determinant in destructive power of bullet.

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657. Heat Rupture is characterized by:

a) Regular margins

b) Irregular margins

c) Ruptured blood vessels

d) Ruptured Red Blood cells/clotted blood

Correct Answer - B
B i.e. Irregular margins

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658. Sexual stimulation obtained through some inanimate object is known as: ***September 2003***

a) Transvestism

b) Fetichism

c) Voyeurism

d) Zoophilia

Correct Answer - B
Ans. B i.e. Fetichism

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659. Transvestism is :

a) Wearing clothes of opposite sex

b) Touching ones own private parts to others

c) Desire for sexual intercourse with dead bodies

d) Orgasm from visualisation part of the body of a woman

Correct Answer - A
A i.e. Wearing clothes of opposite sex

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660. Which of the following is meant by the term ‘Sin of Gomorrah’?

a) Oral sex

b) Anal sex

c) Bestiality

d) Lesbianism

Correct Answer - A
Oral sex is also called **coitus per os** or **Sin of Gomorrah** or **buccal coitus.**
According to Bible the sin was common in a town called: **Gomorrah**, so the name.
It is included in Unnatural sexual offences Act (S.377 IPC).
Ref: The Essentials of Forensic Medicine and Toxicology by Dr. K. S. Narayan Reddy, 27th edition, Page 365.

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661. Voyeurism is ?

a) Sexual gratification by watching the act of sexual intercourse

b) Use of such objects for sexual gratification

c) Sexual gratification is by self pain

d) Sexual gratification by rubbing private part

Correct Answer - A

Ans. is 'a' i.e., Sexual gratification by watching the act of sexual intercourse *[Ref Reddy 30th/e p. 395]*

Voyeurism (Scoptophilia, Peeping tom) : Sexual gratification is obtained by looking at the sexual organs of other persons, watching the act of sexual intercourse, or witnessing undressing by a woman.

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662. Which of the following is the test done to confirm live born fetus after fetal death?

a) Mirror test

b) Breslau's test

c) Magnus test

d) Paraffin test

Correct Answer - B

Ans. is 'b' i.e., Breslau's test [Ref SK Singhal 4th le p. 271]

Tests used in infanticide

Ploucquet's test :

- Weight of lung is measured in relation to body wieght. Before birth weight of lung is 1/70 of body weight and after respiration it becomes 1/35 of body weight due to increased blood flow in lung beds.

Static test or Fodere's test :

- The average weight of both lungs before respiration is 30-40 gm and after respiration is 60-70 cm.

Hydrostatic test (Raygat's test, 1" life test) :

- The gravity of a non-respired lung is 1040-1050 and of a respired lung is 940-950, so, after respiration lung floats on water (specific gravity of water is 1000).

Breslau's second life test :

- It assumes that a live born child would respire and therefore, would also swallow some air into the stomach and bowel.
- Hence they float on water. This test is falsely positive in putrefaction (due to putrefied gases) or in cases of attempted artificial respiration.

Werdin's test :

- Before birth middle ear contains gelatinous embryonic tissue which is replaced by air after respiration.

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663. Bansdola is a form of strangulation by:

NEET 14

a) Ligature

b) Hands

c) Wooden sticks

d) Bend of elbow

Correct Answer - C

Ans. C. Wooden sticks

Depending upon the method used to constrict the neck, strangulation can be divided into :

Ligature strangulation :

* Neck is compressed by a ligature of which usually multiple rounds are given and no knot is tied.

Throttling (manual strangulation) :

* Neck is compressed by one or both hands.
* When neck is compressed by two palms, it is known as palmar strangulation.

Bansdola :

* Compression of neck with *one or two wooden sticks* or *bamboo.*

Garrotting :

* It is compression of neck by a *rope thrown from behind.* Spanish windlass is a type of garrotting, which used to be the official mode of execution in spain. In this, an iron color around the neck was tightened by a screw for strangulation.

Mugging (choke hold) :

* It is compression of neck by forearm or in the bend of elbow.

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Strangulation by knee/foot :
* In this, neck is compressed by knee or foot.

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664. Following is most suggestive of antemortem hanging:
DNB 09

a) Salivary dribbling

b) Congestion of lungs

c) Ligature marks

d) Petechial hemorrhages

Correct Answer - A
Ans. Salivary dribbling

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665. A couple was locked up in a room with fire around. All of the following are the probable immediate causes of death in such circumstance except:-

a) Cyanide intoxication

b) Suffocation

c) Sepsis

d) Fat embolism

Correct Answer - C

Ans. is 'c' i.e., Sepsis *[Ref Reddy 29'/e p. 287; Parikh 6th le p. 4.153]*

Causes of death in burns

Causes of death in burns may be divided into :

A) Causes of immediate death :

- These are (1) neurogenic shock (primary shock), (2) hypovolaemic shock (secondary shock), (3) suffocation, due to inhaled CO, CO_2, (4) cyanide intoxication, (5) fat embolism, (6) cerebral or pulmonary edema, and (7) accidental injuries during burn.

B) Causes of delayed death :

- These are : (1) renal failure (acute tubular necrosis), (2) infections (sepsis, gangrene, tetanus) and (3) centrilobular necrosis of liver.

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666. Pure motor palsy seen in poisoning of

a) Lead poisoning

b) Arsenic poisoning

c) Cocaine poisoning

d) Cannabis poisoning

Correct Answer - A

Ans. is 'A' i.e., Lead poisoning

The peripheral neuropathy of lead toxicity is a pure motor neuropathy affecting the upper limbs more than the lower limbs, presenting as symmetric or asymmetric wrist drop. The weakness may also involve other muscle groups of the distal upper extremities, the involvement of lower extremities, including isolated foot drop, also may occur.

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667. True about strychnine poisoning is :

a) All muscles affected at the same time

b) Shoulder girdle affected first

c) Pelvic girdle affected first

d) None of the above

Correct Answer - A
A i.e. All muscles affected at same time

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668. Wrong about dhatura seeds is ?

a) Kidney shaped

b) Odourless

c) Yellow brown

d) Convex smooth surface

Correct Answer - D

Ans. is 'd' i.e.,Convex smooth surface *[Ref Pilley 4th/e* p. *207; Gautam Biswas 2nd /e* p. *496]*

Features of Dhatura sees are :-

1. Large & thick
2. Odourlers
3. Kidney - shaped
4. Laterally compressed and double edged at convex border (not smooth)
5. Yellowisk brown
6. Bitter

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669. True about acid poisoning is

a) Greatest damage is along the lesser curvature

b) Corrosives cause vaporization of tissues

c) Vitriolage means ingestion of acid in empty stomach

d) Highest chance of perforation is with nitric acid

Correct Answer - A

Ans. is 'a' i.e., Greatest damage is along the lesser curvature

- Magenstrasse is the term applied to the pathway acidic agents follow in stomach. The pathway of acids and alkalis in food filled stomach starts along the lesser curvature of the stomach and leads to the pylorus, which explains the location of greatest damage in food filled stomach. Stomach without food have significant injury in the lower half of two thirds and may have sparing of fundus.
- Mechanism of action :- Corrosives fix, destroy and erode the surface with which they come in contact. They mainly act locally by :
- Hygroscopic extraction of water from tissues
- Coagulation of proteins and
- Conversion of haemoglobin into hematin.
- Titriolage' is throwing of any corrosive on another person. Eyes are affected most commonly. It comes under *sector 320 IPS.*
- There are highest chances of perforation of stomach with 11,SO_4, among all mineral acids.

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Highest content of cannabis is found in which part of the plant?

a) Root

b) Resin

c) Seed

d) Stem

Correct Answer - B

Ans. is `b' i.e.,Resin [Ref Reddy 26th /e p. 528]

- Cannabis, also known as marijuana, is obtained from the Indian Hemp plant or cannabis indica (Cannabis sativa).
- The active principles of Cannabis are contained in its resin.
- All parts of the plant, male or female, contain the active material, except stem, root and seeds.
- The principal constituent of the resin are cannabinol, which has no action.
- Cannabidiol is also inert, but on exposure to heat, it is partly converted to the very active isomeric tetrahydrocannabinols (THC).

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671. All of the following are CNS stimulants except?

a) Amphetamines

b) Benzodiazepines

c) Cocaine

d) Methylphenidate

Correct Answer - B
Ans. is 'b' i.e., Benzodiazepines
CNS stimulants are *amphetamine, methylphenidate, atomoxetine, modafinil, cocaine, pemoline and caffeine.*

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672. Nux vomica seeds contain 2 alkaloids, strychnine and :

a) Hyoscine

b) Hyoscyamine

c) Brucine

d) Atropine

Correct Answer - C
C i.e. Brucine

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673. A sea snake is:

a) Neurotoxic

b) Hemotoxic

c) Musculotoxic

d) All of the above

Correct Answer - C
C i.e. Musculo toxic

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674. 'Cold Turkey' term is used to denote which of the following?

a) Consumption of heroin

b) Abrupt cessation of heroin

c) Gradual withdrawal of heroin

d) Place to withdraw a drug in a group

Correct Answer - B

Ans. is 'b' i.e., Abrupt cessation of heroin *[Ref Quitting Smoking for Life p. 18]*

- 'Cold Turkey' means abrupt and complete cessation of taking a drug to which one is addiced.
- Alcohol is not the only drug whereby quitting cold turkey poses a danger to the patient. People who are addicted to opiates (heroin, methadone, morphine, Suboxone, and even prescription benzodiazepines) are at immense risk if they try to stop their drug intake without a plan.

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675. All are true of opioid withdrawal, *except:*
NIMHANS 10; PGI 14

a) Yawning

b) Hallucinations

c) Lacrimation

d) Piloerection

Correct Answer - B
Ans. Hallucinations

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676. Smoky stool is seen in which poisoning?

a) Phosphorus

b) Arsenic

c) Lead

d) Zinc

Correct Answer - A

Ans. is 'a' i.e., Phosphorus *[Ref Modern Medical Toxicology by Pillay p. 68]*

Acute poisoning of phosphorus :?

- Breath smells of garlic.
- Vomitus and stools may be luminous in the dark.
- Smoky stool syndrome :- Faint fumes may emanate from the stools.
- Manifestations of liver damage - tender hepatomegaly, jaundice which may progress to an olive green hue, flapping tremor of hands (asterixis), mousy odour to the breath (foetor hepaticus).

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677. Gigantin is active principle of

a) Plumbago Rosea

b) Calotropis

c) Ricinus Communis

d) P. Zeylanica

Correct Answer - B

Ans. is 'b' i.e., Calotropis [Ref Concise Textbook of FMT - Sharma p. 250]

- Calotropis gigantea -4 contains active principle named gigantin.
- When cut, stem and leaves of the plant exrude an acrid milky juice. When this juice is allowed to stand or heated, serum is exuded leaving behind white clot.
- The serum contains the active principle named gigantin which is very toxic.

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678. Which of the following is true about cocaine metabolite test

a) Measure benzoylecgonine levels

b) Used to diagnose cocaine use

c) Treatment of cocaine overdose

d) All of the above

Correct Answer - D

Ans. is 'd' i.e., All of the above [Ref Code of Federal Regulations p. 174]

Cocaine and cocaine metabolite test system :

- A cocaine and cocaine metabolite test system is a device intended to measure cocaine and a cocaine metabolite (benzoylecgoonine) in serum, plasma, and urine.
- Measurements obtained by this device are used in the diagnosis and treatment of cocaine use or overdose.

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679. Active ingredient of marking nut is ?

a) Semecarpol

b) Crotin

c) Abrin

d) None

Correct Answer - A
Ans. is 'a' i.e., Semecarpol
Semicarpus anacardium or marking nut or bhilawan

- Its seed are heart shaped, conical and black with acrid oily juice which is brownish but turns black on exposure to air.
- Active principles are semecarpol and bhilawanol.
- Juice applied to skin produces irritation, painful blisters followed by itching and eczema. Therefore it is used to produce artificial bruises.
- It is also used by washerman to mark clothes.

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680. Who is the father of modern Microbiology?

a) Metchnikoff

b) Lord Lister

c) Louis Pasteur

d) Robert Koch

Correct Answer - C
Father of Modern Microbiology : Louis Pasteur.
Father of Medical Microbiology : Robert Koch.
Father of Pathology : Rudolph Virchow.

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681. **Which of the following statement regarding cell division is NOT TRUE?**

a) Produces haploid number of chromosomes

b) Produces same number of chromosomes

c) Produces 2 cells

d) None of the above

Correct Answer - A

Mitosis is a nuclear division in which daughter cells receive the same number of chromosomes as that of parent cell. The daughter cells resulting from mitosis are identical to each other and also to the parent cell in the quantity and quality of genetic material.

Mitosis:

- It is the process that facilitates equal partitioning of replicated chromosomes into two identical groups.
- As a result of this two new daughter cells arise from one original cell.
- All the cells created through mitosis are genetically identical to one another and to the cell from where they came.
- The main purpose of mitosis in eukaryotic cells are growth of the individual, repair of tissue and asexual reproduction.

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682. All of the following are important mechanisms of gene transfer in bacteria, except ?

a) Lateral gene transfer

b) Conjugation

c) Vertical gene transfer

d) Horizontal gene transfer

Correct Answer - C

Ans. is 'c' i.e., Vertical gene transfer

Gene transfer

- Gene transfer refers to the process of genetic material (e.g. DNA) being sent and received among two organisms-* Donor sends and recipient receives the genetic material.
- There are two processes of gene transfer :?

1. Horizontal gene transfer (HGT) or lateral gene transfer

- Horizontal gene transfer is the process by which genetic material is passed between two different organism,i.e. organism of different species.
- The recipient is not the offspring of donor.
- The most important example is gene transfer between the bacteria.
- The processes of horizontal gene transfer in bacteria are :-

1. Transduction
2. Transformation
3. Conjugation

2. Vertical gene transfer

- Vertical gene transfer is the process of transferring genetic material to organism of same species, i.e. donor recieves genetic material

from its ancestor, e.g. its parent or a species from which it evolved.

- Therefore, the donor will have the same general makeup as the parents.
- Vertical gene transfer is "a mix of two parents", i.e. when two organisms mate, their genes are vertically transfered to their spawn.
- This process is not important in bacteria.

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683. Natural method of horizontal gene transfer among bacteria includes -

a) Electroporation

b) Transduction

c) Transformation

d) b and c

Correct Answer - D

Ans. is 'b' i.e., Transduction; 'c' i.e., Transformation

Gene transfer

- Gene transfer refers to the process of genetic material (e.g. DNA) being sent and received among two organisms ---> Donor sends and recipient receives the genetic material.
- There are two processes of gene transfer :?

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2. Transformation
3. Conjugation

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- Vertical gene transfer is the process of transferring genetic material to organism of same species, i.e. donor recieves genetic material from its ancestor, e.g. its parent or a species from which it evolved.
- Therefore, the donor will have the same general makeup as the

parents.

- Vertical gene transfer is *"a mix of two parents",* i.e. when two organisms mate, their genes are vertically transfered to their spawn.
- This process is *not important in bacteria.*

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684. All culture media are used for antibiotic susceptibility except -

a) **Tetrathionate-F**

b) **Blood agar**

c) **Chocolate agar**

d) **Muller-Hinton agar**

Correct Answer - A
Ans. is 'a' i.e., Tetrathionate-F
* The Kirby-Bauer disk diffusion method is one of the most widely practiced **antimicrobial susceptibility tests** (AST).
* It is affected by many factors among which are the **media used**.
* Mueller-Hinton agar (MHA) is the standard **medium** recommended in guidelines.
*** Mueller-Hinton** has a few properties that make it excellent for **antibiotic use**. ...
- Starch is known to absorb toxins released from bacteria, so that they cannot interfere with the **antibiotics**.
- Second, it is a loose **agar**. This allows for better diffusion of the **antibiotics** than most other plates.

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685. Loeffer's serum is an example of

a) Basal medium

b) Simple medium

c) Complex medium

d) Enrichment medium

Correct Answer - C

Ans. is 'c' i.e., Complex medium ***[Ref Ananthanarayan 8th/e.p. 140]***

Loeffler's *medium* is an enriched medium → A type of special (complex) medium.

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686. To create anaerobiosis which organism is used

a) Micrococcus

b) Clostridium

c) B. anthracis

d) Corynebacterium

Correct Answer - A

Ans. is *'a' i.e.*, Micrococcus

- Obligate aerobic micrococcus is used to create anaerobic condition (anaerobiosis).
- The micrococcus and the anaerobic organism to be cultivated are both inoculated into the same liquid medium.
- During incubation the Micrococcus gradually utilizes the free oxygen creating conditions favorable for the growth of anaerobe.
- After anaerobiosis is achieved, the micrococcus dies (due to lack of oxygen) leaving the anaerobe in pure culture.

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687. Savlon contains

a) Cetrimide + Chlorhexidine

b) Cetrimide + Chlorhexidine + butyl alcohol

c) Cetrimide + butyl alcohol

d) Cetrimide + Cetavlon

Correct Answer - A

Ans : A.Cetrimide + chlorhexidine *[Ref KDT pharmacology 6/e, p 861, 860; Park 20/e, p 117]*

Savlon contains - Chlorhexidine gluconate (hibitane) + Cetrimide (cetavlon) in various percentages Savlon liquid antiseptic - chlorhexidine gluconate 1.5% + cetrimide 3%

Savlon cream - chlorhexidine HC1 0.1% + cetrimide 0.5%

Savlon hospital concentrate - chlorhexidine gluconate 7.5% + cetrimide 15%

Other antiseptic and disinfectants of importance:

- Betadine - povidone (polyvinylpyrrolidone) iodine
- Dettol - chloroxylenol 4.8% in 9% terpinol & 13% alcohol
- Dakin's solution - Diluted sodium hypochlorite solution buffered with boric acid. Available chlorine is 0.5%.
- Eusol - Solution of chlorinated lime (1.25%) + boric acid (L25%) 0.4% available chlorine
- Dakin's solution & Eusol dissolve pus & necrotic tissue in addition to being germicidal. So used in cleaning of infected wound.

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688. Which of the following is a method of Pasteurization

a) Vat method

b) Pasteur method

c) Billing method

d) Flash method

Correct Answer - A:D

Ans. is 'a & d' i.e., Vat method & Flash method [Ref Park 23ra/e p. 655]

- Pasteurization is done to destroy the pathogens in milk. It kills nearly 90% of bacteria in milk, including more heat resistant tubercular bacilli and Q-fever organism. However, thermoduric bacteria and spores are not killed.

There are following methods of pasteurization :?

A) Holder method (Vat method)

- Milk is kept at 63-66° C for 30 minutes and then rapidly cooled to 5°C.

B) High temperature short time (HTST) method

- It is also called Flash method. Milk is heated to 72°C for 15 seconds and then rapidly cooled to 4°C.
- It is now the most widely used method.

C) Ultra-high temperature (UHT) method

- Milk is rapidly heated in two stages to 125° C for few seconds, 2nd stage being under pressure. It is then rapidly cooled.

Method	Remarks
Holder/Vat Method	For small and rural communities
HTST (flash)	Most widely used, for large

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HTST (flash) Method	Most widely used, for large quantities
UHT Method	Heating in 2 stages 2'd stage under pressure

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689. Temperature used in Tyndallizaton

a) 40°C

b) 60°C

c) 80°C

d) 100°C

Correct Answer - D

Ans. is 'd' i.e., 100°C ***[Ref Ananthanarayan 9thie* p. *31 & trie* p. *33]***

Tyndallization (intermittent sterilization)

- Media containing sugar or gelatin are sterilized by heating at 100°C for 20 minutes on three successive days.
- First exposure kills all vegetative bacteria.
- Spores germinate and are killed on subsequent exposures

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690. Laproscope is sterilized by ?

a) 2% formalin

b) 2% glutaraldehyde

c) Autoclaving

d) Boiling

Correct Answer - B
Ans. is 'b' i.e., 2% glutaraldehyde
All endoscopes (e.g. laproscope) are sterilized by 2% glutaraldehyde (cidex).

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691. Sterilization of culture media containing serum is by:

a) Autoclaving

b) Micropore filter

c) Gamma radiation

d) Gamma radiation

Correct Answer - A
Ans. (a) Autoclaving

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692. Nutrient agar heated at 80°C used for

a) Spore germination

b) To grow mesophilic bacteria

c) To grow thermophilic bacteria

d) For clostridium isolation

Correct Answer - A:D

Ans. is 'a' > 'd' i.e., Spore germination > For clostridium isolation

- Heating for 20 minutes at 80 degrees centigrade destroys vegetative cells and activates the spores for germination.
- This method can be used to cultivate anaerobic spore-forming organisms (e.g. clostridium)

About options a & c

- Microorganisms can be grouped into broad (but not very precise) categories, according to their temperature ranges for growth.
- Psychrophiles (cold-loving) can grow at 0°C, and some even as low as -10°C; their upper limit is often about 25°C.
- Mesophlles grow in the moderate temperature range, from about 20°C (or lower) to 45°C.
- Thermophiles are heat-loving, with an optimum growth temperature of 50° or more, a maximum of up to 70°C or more, and a minimum of about 20°C.
- Hyperthermophiles have an optimum above 75°C and thus can grow at the highest temperatures tolerated by any organism. An extreme example is the genus *Pyrodictium,* found on geothermally heated areas of the sea bed. It has a temperature minimum of 82°, an optimum of 105° and a growth maximum of 110°C.

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693. Involutional form are seen in which phase of bacterial growth

a) Lag phase

b) Log phase

c) Stationary phase

d) Death phase

Correct Answer - D

Ans. is 'd' i.e., Death phase *[Ref Ananthanarayan 9^{4}Ve p. 22]*

- Bacterial growth is the division of one bacterium into two daughter cells in a process called *binary fission.* Providing no mutational event occurs, the resulting daughter cells are genetically identical to the original cell.
- Hence "Local doubling" of the bacterial population occurs. Bacteria have a distinct pattern of growth when a bacterium is seeded into a suitable liquid medium and incubated, its growth follows a definite course.

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694. Partial acid fast organism is

a) M. tuberculosis

b) M. Bovis

c) Nocardia

d) None

Correct Answer - C

Ans. is 'c' i.e., Nocardia *[Ref Concise Review of microbiology p. 13]*

- Portial acid fast means, organism which is shows less affinity for primary stain, thus less concentrated H_2So_4 (instead of 20% H_2So_4) is used for decolorization of primary stain (Carbol fuschin).
- Partial acid fast bacteria are M leprae (5% H,SO_4), and Nocardia (0·5% H2SO4)

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695. Resolving power of electron microscope

a) 1-5 mm

b) 1-5 um

c) 1-5 nm

d) 1-5 A°

Correct Answer - D

Ans. is 'd' i.e.,1-5 A^{e} ***[Ref Essentials of medical microbiology]***

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696. Classification of staphylococcus is based on -

a) Catalase test

b) Coagulase test

c) Mannitol fermentation

d) Optochin sensitivity

Correct Answer - B

Ans. is 'b' i.e., Coagulase test

Medically important staphylococci that cause human disease are divided into two groups:?

- Coagulase positive: Staphylococcus aureus.
- Coagulase-negative: *Staphylococcus epidermidis, Staphylococcus haemolyticus, Staphylococcus saprophyticus.*

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697. Iron helps in virulence of which organism

a) Streptococcus pyogenes

b) Pneumococcus

c) Staphylococcus aureus

d) Pseudomonas

Correct Answer - C

Ans. is 'c' i.e., Staphylococcus aureus

- Staphylococcus aureus causes a significant amount of human morbidity and mortality.
- The ability of S.aureus to cause disease is dependent upon its acquisition of iron from the host.
- S. aureus can obtain iron from various sources during infection, including haem and transferrin.
- The most abundant iron source in humans is haem iron bound by haemoglobin contained within erythrocytes.
- S. aureus is known to lyre erythrocytes through secretion of pore-forming toxins, providing access to host haemoglobin.
- Proteins of the iron-regulated surface determinant (Isd) system bind host hemoproteins, remove the haem cofactor, and shuttle haem into the cytoplasm for use as a nutrient iron source.
- Deletion of Isd system components decreases staphylococcal virulence, underscoring the importance of haem iron acquisition during infection.
- In addition to haem, S. aureus can utilize transferrin iron through the secretion of siderophores.
- Several staphylococcal siderophores have been described, some of which have defined roles during the pathogenesis of staphylococcal

infections.

698. All are true about listeria except:

a) Gram positive

b) PALCAM agar is used for isolation

c) Characteristic tumbling motility at 37°C

d) Umbrella shaped growth

Correct Answer - C

Ans. is. 'c' i. e., Characteristic tumbling motility at 37°C

- *L. monocytogenes* is a gram-positive' coccobacillus'(coccoid rod) with a tendency to occur in chains.
- Peritrichous flagella are produced by the bacillus optimally at 20-30°C but only scantily or not at all at 37°C
- Culture media used for isolation are blood agar, chocolate agar, and PALCAM agar.
- It grows on ordinary media within a temperature *range of 1° to* 45°C.
- *Most cases of human disease are caused by serotypes 1/2a, 1/2b and 4b.*
- The organism can be found as a part of the gastrointestinal flora in healthy individuals.
- Human disease due to L. monocytogenes generally occurs in the setting of *pregnancy or immunosuppression.*

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699. DOC for listeria meningitis -

a) Ampicillin

b) Cefotaxime

c) Cefotriaxone

d) Ciprofloxacin

Correct Answer - A

Answer- A. Ampicillin

- The antibiotic of choice for listeria infection is ampicillin or penicillin G.

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700. Which of the following is not mechanism for resistance to MRSA -

a) Resistance is chromosomally mediated

b) Produced mainly by alteration in PBPs

c) MRSA resistance is absolutely beta-lactamase independent

d) Intrinsic resistance is known

Correct Answer - C
Ans. is 'c' i.e., MRSA resistance is absolutely beta-lactamhhase independent

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701. Wool-Sorter disease is caused by

a) Pseudomonas

b) Bacillus anthracis

c) Vibrio parahemolyticus

d) Spirillus minor

Correct Answer - B

Ans. is 'b' i.e., Bacillus anthracis *[Ref Harrison 19(h)/e* p. *261; Ananthnarayan /e p. 246]*

Bacillus Anthracis is the causative organism of anthrax.

In human, anthrax occurs in following forms ?

- Cutaneous anthrax (Hide porter's disease)
- It is the *most common form of anthrax.* It is a painless lesion and is called charbon or malignant pustule. It generally resolves spontaneously, but 10-20% of untreated patients may develop fatal septicemia.
- Pulmonary anthrax (Wool sorter's disease)
- It follows inhalation of dust from infected wool. It presents as hemorrhagic pneumonia.
- Intestinal anthrax is rarest form.

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702. All are true about cutaneous anthrax except ?

a) Extremely painful

b) The whole area is congested and edematous

c) Central crustation with black eschar

d) Satellite nodule around inguinal region

Correct Answer - A
Ans. is 'a' i.e., Extremely painful
Cutaneous anthrax is painless.

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703. Capsule of Bacillus anthracis is formed of:

a) Polysaccharide

b) Lipopolysaccharide

c) Polypeptide

d) Long chain fatty acids

Correct Answer - C
Ans. is. 'c' i. e. Polypeptide

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704. Fishy odour is found on growth of which organism

a) Proteus

b) Pseudomonas

c) Yersinia pseudotuberculosis

d) Yersinia pestis

Correct Answer - A
Ans. is 'a' i.e., Proteus
Proteus is part of the normal flora of the human gastrointestinal tract. It can also be found free-living in water and soil. When this organism, however, enters the urinary tract, wounds, or the lungs it can become pathogenic
Culture of proteus bacilli has a characteristic putrefactive odor described as *'fishy or seminal".*
Rotten cooked fishy odor: *Proteus mirabilis produces a very distinct fishy odor. On* ***Salmonella-Shigella (SS) agar****, Proteus usually smells like "rotten cooked fish".*

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705. Confirmatory test for Syphilis is:
September 2010 March 2013

a) VDRL

b) Rapid plasma reagin test

c) FT-ABS

d) All of the above

Correct Answer - C
Ans. C: FT-ABS
T. pallidum cannot be grown in vitro
Diagnostic tests for syphilis: Tests include serologic tests for syphilis (STS), which consist of screening (reaginic) and confirmatory (treponemal) tests, and dark field microscopy.
Reaginic tests use lipid antigens (cardiolipin from bovine hearts) to detect reagin (human antibodies that bind to lipids). The Venereal Disease Research Laboratory (VDRL) and rapid plasma reagin (RPR) tests are sensitive, simple, and inexpensive reaginic tests that are used for screening but are not specific for syphilis. Results may be presented qualitatively (e.g., reactive, weakly reactive, borderline, or nonreactive) and quantitatively as titers (e.g., positive at 1:16 dilution).
Many disorders other than treponemal infections (e.g., SLE, antiphospholipid antibody syndromes) can produce a positive (biologically false-positive) reagin test result. CSF
reaginic tests are reasonably sensitive for early disease but less so for late neurosyphilis. CSF reagin tests can be used to diagnose neurosyphilis or to monitor response to treatment by measuring antibody titers.
Treponemal tests detect antitreponemal antibodies qualitatively

and are very specific for syphilis. They include the following:

- Fluorescent treponemal antibody absorption (FTA-ABS) test
- Microhemagglutination assay for antibodies to T. pallidum (MHA-TP)
- T. pallidum hemagglutination assay (TPHA)

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706. Rapid detection of meningococcal meningitis is

a) Blood culture

b) CSF culture

c) PCR

d) None

Correct Answer - C
Ans. is 'c' i.e., PCR *[Ref Basic in microbiology p. 719]*
"PCR assay can be performed rapidly with a turnaround time of 2 hour from intiation of DNA extraction to the issuing of reports". Laboratory diagnosis of meningococci
Specimens used are CSF (for cases), nasopharyngeal swab (for carrier), blood (in meningococcemia & early meningitis), and petechial lesions (in meningococcemia).

- Best specimen for case 4 CSF (by lumbar puncture).
- Best specimen for carrier 4 Naspharyngeal swab.

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707. Presumptive diagnosis of meningococcal meningitis is made earliest by -

a) CSF culture

b) PCR

c) Latex agglutination

d) CFT

Correct Answer - C

Ans. is 'c' i.e., Latex agglutination *[Ref Essentials of medical microbiology*r3 d/e *p. 412]*

- In combination with a clinical picture CSF examination consistent with bacterial meningitis, a presumptive diagnosis of bacterial meningitis caused by N. meningitidis, S. pneumoniae, or H. influenzae can by made after performing a Gram stain of the CSF sediment or by detection of specific antigens in the CSF by a latex agglutination test or using RDTs.
- Positive results for any of these tests can rapidly provide evidence of infection even if cultures fail to grow. PCR and CSF culture are used for definitive diagnosis (not presumptive diagnosis)

708. Legionnaire disease is caused by?

a) Motile gram positive

b) Motile gram negative

c) Non-motile gram positive

d) Non-motile gram negative

Correct Answer - B

Ans. is 'b' i.e., Motile gram-negative

- Legionella is a gram-negative, non-capsulated coccobacillus which is motile by polar or subpolar Flagella.

Legionella causes the following infections :

A) Pulmonary infections

There are two types of pulmonary infections:-

1. Pontiac Fever: It is self-limiting flu-like illness with incubation period 24-48 hours. There is no pneumonia.

2. Legionnaires Disease:

- It is atypical pneumonia with an incubation period of 2-l0 days.
- It is characterized by cough. chest pain, hemoptysis, high-grade fever, diarrhoea, confusion, 'relative bradycardia and hyponatremia'.
- If the onset of symptoms occurs within 10 days of discharge from the hospital, nosocomial legionnaire's disease should be suspected.

Extrapulmonary infections

- The most common site of infection is the heart (myocarditis/pericarditis/endocarditis).

709. Pontiac fever is caused by:

a) Legionella

b) Listeria

c) Scrub typhus

d) Leptospira

e) Rickettsia

Correct Answer - A
Ans. (a) Legionella
Pontiac fever is a mild nonfatal influenza like illness caused by Legionella pneumophila.
Pontiac fex c,

- An acute self limiting flue like illness with IP of 24-48 hours
- Malaise, fatigue and myalgia are the most frequent presenting symptoms
- Pneumonia doesn't develop.
- Complete recovery takes place, without antibiotic therapy.
- Diagnosis is established by antibody detection.

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710. Sewer swabs are taken to detect

a) Typhoid cases in community

b) Cholera cases in community

c) Typhoid carriers in community

d) Cholera carriers in community

Correct Answer - C

Ans. is 'c' i.e., Typhoid carriers in community *[Ref Textbook of practical Microbiology* p. 721]

- Typhoid carriers are detected by Sewer-swab method'.
- The use of sewer swabs enables premises to be screened for the possibility of the existence of a salmonella problem more quickly and more easily than by the examination of many end-of-line samples.
- In the event of salmonellae being found, a return visit can be paid and detailed samples taken to attempt to defect the source of contamination.

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711. Species of shigella causing arthritis

a) Sh dysenteriae-1

b) Sh sonnei

c) Sh flexneri

d) Sh boydii

Correct Answer - C

Ans. is 'c' i.e., Sh flexneri [Ref Harrison 18th/e p. 945]

- Shigella is highly communicable. The infective dose for shigella is less. It can be as low as 10-100 bacilli because they survive gastric acidity better than other enterobacteriae.
- Shigellae produce follwing clinical features.

1) Intestinal : These are :-

- Dysentery : Most common cause is Sh dyenteriae typel.
- Diarrhea : Usually by Sh Sonnei.

2) Extraintestinal : These are hemolytic uremic syndrome (caused by Sh dysenteriae-I), arthritis (Sh flexneri), seizures (Sh flexneri), pneumonia and Reiter syndrome (in HLA B27 association).

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712. Griffth classification is base on

a) 'C'-carbohydrate

b) M, T, R antigens

c) Type of hemolysis

d) 0, requirment

Correct Answer - B

Ans. is 'b' i.e., M, T, R antigens *[Ref Ananthanarayan 9th/e* p. *209, 210]*

Group 'A' strep. are further subdivided into types based on the protein (M, T and R) antigens present on the cell surface (Griffith typing). About 80 types of str. pyogenes have been recognized.

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713. How does chlamydia differ from other usual bacteria?

a) Lack cell wall

b) Cannot grow in cell free culture media

c) Contains inclusion body

d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Contains inclusion body

Chlamydia produces basophilic (intracytoplasmic) inclusion bodies in infected cells in contrast to eosinophilic inclusion bodies produced by most viruses and hence they are sometimes referred to as Basophilic viruses.

Unique properties of chlamydiae are

- Chlamydia is an *obligate intracellular parasite.* This means they can survive only by establishig residence inside animal cells
- They need their host's ATP as an energy source for their own cellular activity. They are energy parasites using a cell membrane transport system that uses ATP from the host system and gives out ADP.
- This obligate intracellular existence makes it impossible to culture these organisms on nonliving artificial media. Due to their small size and failure to grow in cell - free media they were considered to be viruses.
- Chlamydiae grows in cultures of a variety of eukaryotic cell lines Mc Coy or HeLa cells. It may be necessary to treat cells with polyanionic compounds such as DEAD-dextran to reduce the electrostatic barrier to infection. Antimetabolite such as cycloheximide is added to favour competition for host cell amino acid pools. All types of

chlamydiae proliferate in embryonated eggs particulary in the yolk sac.

- The special features in structure and chemical composition of chlamydiae are:

1. The outer cell wall resembles the cell wall of gram negative bacteria
2. It has a relatively high lipid content
3. It is rigid but it does not contain typical bacterial peptidoglycan; perhaps it contain a tetrapeptide linked matrix.
4. N Acetylmuramic acid also appears to be absent from chlamydiae cell wall.

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714. Similarity between chlamydia and virus is

a) Filterable through filter

b) Ability to grow in cell free media

c) Contains both DNA and RNA

d) All of the above

Correct Answer - A

Ans. is 'a' i.e.,Filterable through filter [Ref Textbook of microbiology by Parija p. 418]

Chlamydiae were thought to be viruses because (like viruses) they :

- Pass through 0·45 ym filters.
- Are obligate intracellular parasite - cannot be grown in cell free media.

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715. Chlamydia trachomatis infection commonly causes:
March 2004

a) Infertility

b) Post coital bleeding

c) Amenorrhoea

d) Malignancy

Correct Answer - A
Ans. A i.e. Infertility

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716. Which test cannot differentiate endemic and epidemic typhus

a) Weil-Felix reaction

b) Complement fixation test

c) Immunofluorescence

d) Radio precipitation

Correct Answer - A

Ans. is 'a' i.e., Weil-Felix reaction

Both epidemic typhus and endemic typhus are positive for OX-19 antigen → Thus Weil Felix reaction cannot differentiate between the two.

Weil-Felix reaction

- This reaction is an agglutination test in which sera are tested for agglutinins to 0 antigens of certain nonmotile proteus strains OX- 19, OX - 2 and OX - K.
- The basis of the test is the sharing of an alkali - stable carbohydrate antigen by some rickettsiae and by certain strains of proteus, P. vulgaris OX - 19 and OX - 2 and P. mirabilis OX - K.
- The test is usually done as a tube agglutination, though rapid slide agglutination methods have been employed for screening.

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717. E. coli subtypes are divided on the basis of

a) Lactose fermentation

b) Virulence properties

c) Somatic 0 antigen

d) Maltose fermentation

Correct Answer - B

Ans. is 'b' i.e., Virulence properties *[Ref en wikipedia.org]*

Enteric E.coli (EC) are classified on the basis of serological characteristics and virulence properties *:?*

- Enteropathogenic E. coli (Enteroadherent E coli)
- Enterohemorrhagic E.coli or verotoxigenic E.coli
- Enterotoxigenic E. coli
- Enteroaggregative E. coli
- Enteroinvasive E. coli

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718. A 20 year old man presented with abdominal pain, vomiting and bloody diarrhea, his stool sample grew Escherichia coli in pure culture. Which of the following serotype of E.coli is the causative agent of hemorrhagic colitis?

a) O 157:H7

b) O 159:H7

c) O 107:H7

d) O 55:H7

Correct Answer - A
Enterohemorrhagic E.coli O157:H7 is the serotype of E.coli causing hemorrhagic colitis.

It is associated with the ingestion of undercooked hamburger, sprouts, unpasteurized milk or juice.
EHEC produces a shiga toxin and can cause colitis after an incubation period of 3 -5 days.
It typically produces watery diarrhea that progress to bloody diarrhea after a few hours to few days.
Fatigue, abdominal pain, nausea and vomiting are associated complaints.

Mechanism of enterohemorrhagic colitis appears to be vascular endothelial damage that leads to platelet aggregation and initiation of the coagulation cascade. This in turn, leads to ischemia of the

colon and results in hemorrhagic colitis.

Ref: Mayo Clinic Gastroenterology and Hepatology Board Review By Stephen Hauser, 4th Edition, Page 197

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719. ELISA test for virulence antigen is used for which type of E coli

a) ETEC

b) EIEC

c) EHEC

d) EAEC

Correct Answer - B

Ans. is 'b' i.e., EIEC *[Ref Ananthnarayan 9th/e p. 279]*

- For laboratory diagnosis of EIEC, the Sereny test used to be employed (that is, instillation of suspension of freshly isolated EIEC or shigella into the eyes of guinea pigs leads to mucopurulent conjunctivities and severe keratitis).
- Mice may be used instead of guinea pigs. Cell penetration of HeLa or HEP-2 cells in culture is a more humane diagnostic test.
- This ability to penetrate cells is determined by a large plasmid, detection of which can also be a diagnostic test. The plasmid codes for outer membrane antigens called the 'virulence marker antigens' (VMA) which can be detected by the ELISA (VMA ELISA) test.

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720. E. coli infection occur in which enzyme defect

a) Lactase

b) Pyruvate kinase

c) Pepsin

d) Trypsin

Correct Answer - B

Ans. is 'b' i.e., Pyruvate kinase [Ref Hardcore microbiology & immunology by Benjamin W Sears p. 133]

Opportunistic infections is immunodeficiency due to defect in myeloid cells are :-

- Staph aureus
- Klebsiella
- Pneumococcus
- E. coli
- Neisseria
- Candida

Conditions causing defect in myeloid cells are :?

- Chronic granulomatous disease
- Chediak-Higashi syndrome
- G6PD and pyruvate kinase deficiency
- Myeloperoxidase deficiency

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721. Culture media containing potassium tellurite

a) TCBS medium

b) Monsur medium

c) BYCE medium

d) Muller Hinton agar

Correct Answer - B

Ans. is 'b' i.e., Monsur medium *[Ref Fundamental principles of bacteriology p. 129]*

Monsur's GTTA medium is Monsur's gelatin tourocholate trypticase tellurite agar. Selective media for vibrio cholarae

- TCBS medium (pH 8.6) : This medium contains thiosulfate, citrate, bile salts, sucrose, and bromothymol blue (indicator). V. cholerae produces large, yellow convex colonies on this medium.
- This is due to fermentation of sucrose by the bacteria, leading to production of acid. Accumulation of acid reduces pH of the medium, and so the color of the bromothymol blue indicator becomes yellow, thus making V. cholerae colonies yellow. Non sucrose-fermenting V. parahaemolyricus produces blue green colonies.
- Monsur's GTTA medium (pH 8.5): High pH of the medium and presence of potassium tellurite in this medium inhibits most of Gram positive bacteria and enteric bacteria with exception of proteus species.
- Hence, the GTTA medium is used for isolation of V. cholerae and other vibrios from feces. V. cholerae produces small translucent colonies with grayish black cencer and a turbid halo after 24 hours of incubation. The colonies become larger (3-4 mm in size) after a prolonged incubation of 48 hours.

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- Alkaline BSA (pH 8.2) : This is another selective medium used for V. cholerae. The colonies on BSA are similar to those on nutrient agar.

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722. Borrelia causes which of the following

a) Weil's disease

b) Bejels

c) Vincent angina

d) Yaws

Correct Answer - C

Ans. is 'c' i.e., Vincent angina

Three important diseases caused by Borreliae are :?

- Lyme disease : Caused by B. burgdorferi
- Relapsing fever : Caused by B. recurrentis, B duttoni, B. hermsii, B. Parkeri, B. turicatae, B. persica, B. hispanica.
- Vincent's angina : Caused by B. vincenti.

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723. Which of the following is most active against slowly dividing tubercular bacilli ?

a) Isoniazid

b) Rifampicin

c) Streptomycin

d) Ethambutol

Correct Answer - B
Ans. is 'b' i.e., Rifampicin

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724. Generation time for M tuberculosis

a) 10-15 min

b) 10-15 hours

c) 10-15 days

d) 5-10 days

Correct Answer - B

Ans. is 'b' i.e., 10-15 hours *[Ref Ananthanarayan 8th/e p. 365]*

Generation time of lepra bacillus → 4 12-13 days

Generation time of tubercle bacillus → 14 hours

Generation time of coliform bacilli → 20 minutes

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725. Gonococci has affinity for :

a) Columnar epithelium

b) Glandular epithelium

c) Stratified sqamous epithelium

d) Squamous epithelium

Correct Answer - A
Columnar epithelium

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726. **Which of the following agents is most commonly associated with recurrent meningitis due to CSF leaks?**

a) Meningococci

b) Pneumococci

c) Hemophilus Influenza

d) E. Coli

Correct Answer - B

Intracranial CSF leaks cause bacterial meningitis, about 80% are caused by S. Pneumoniae. Other causative organisms are meningococcus, Hemophilus species and S.aurues.

Ref: Clinical Pediatric Neurology By Ronald B. David, Page 217

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727. True about vibrio cholerae is -

a) Disease more common in woman

b) Classical vibrio protect against development of 0-139 Tor is milder than classical

c) El - Tor is milder than classical

d) All

Correct Answer - C
El - Tor is milder than classical

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728. Diphtheria toxin's mechanism of action is:

September 2009

a) Inhibiting glucose synthesis

b) Inhibiting protein synthesis

c) Promoting acetylcholine release

d) Altering cyclic GMP levels

Correct Answer - B
Ans. B: Inhibiting protein synthesis
The diphtheria toxin causes the death eucaryotic cells and tissues by inhibition of protein synthesis in the cells. Although the toxin is responsible for the lethal symptoms of the disease, the virulence of C. *diphtheriae* cannot be attributed to toxigenicity alone, since a distinct invasive phase apparently precedes toxigenesis.

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729. Stalactite growth in ghee broth is due to the following organism?

a) Y.pestis

b) T.palladium

c) H.influenzae

d) C.diphtheriae

Correct Answer - A

Cultural characteristics of Yersinia pestis:

1. When grown in a flask of broth with oil / ghee floated on top (ghee broth) a characteristic growth occurs which hangs down into the broth from the surface, resembling **stalactite**.
2. On **nutrient agar**, colonies are small, delicate, transparent discs, becoming opaque on continued incubation.
3. On **blood agar** colonies are dark brown due to absorption of the hemin pigment.
4. On **MacConkey agar** colourless colonies are formed.
5. In **broth** a flocculent growth occurs at the bottom and along the sides of the tube.

Ref: Textbook of Microbiology Ananthanarayanan, 8th edition

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730. Cyst with scolex and hooks is seen in

a) T. saginatu

b) Fish tapeworm

c) Echinococcus

d) H. diminuta

Correct Answer - C

Ans. ***is 'c' i.e.,*** **Echinococcus** ***[Ref: Clinical parasitology 3rd/e*** **p.** ***315]***

First one must understand the meaning of scolex. Scolex is pear-shaped or knoblike head of cystodes (tapeworms).

Scolex is covered with suckers and hooks :-

1. Taenia solium : Scolex contains four suckers and rostellar hooks (rostellum with hooks).
2. Taenia saginata : Scolex contains four suckers but no hooks/rostellum (hookless).
3. H. Nana : Scolex contains four suckers and rostellum of hooks.
4. H. diminuta : Scolex contains four suckers but no hooks (hookless).
5. Echinococcus : Scolex contains suckers and rostellum of hooks.
6. Diphyllobothrium lotus : Scolex has two elongated sucking grooves (instead of suckers). There are no hooks (hookless).

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731. E. coli is differentiated by E histolytica by presence of

a) Very active movement

b) Thin nuclear membrane

c) Cyst with 1-4 nuclei

d) Blunt pseudopodia

Correct Answer - D
Ans. is 'd' i.e., Blunt pseudopodia *[Ref: Essentials of medical parasitology* p. *37]*

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732. Pulmonary eosinophilia is found in infection with ?

a) Babesia

b) Malaria

c) Strongyloides

d) Trypanosoma

Correct Answer - C
Ans. is 'c' i.e., Strongyloides *[Ref Harrison 18th/e* p. *2120 & 17th/e p. 1610]*
Ascaris
Strongyloides stercoralis
Ancylostoma (hook worm)
Wuchereria bancrofti or W. malayi
Toxocara

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733. Adherence of E. histolytica to colonic mucosa is mediated by ?

a) Fibronectin

b) Lectin

c) Collagen

d) Fucose

Correct Answer - B

Ans. is 'b' i.e., Lectin *[Ref www.pathologyoutlines.com]*

Pathophysiology of E. histolytica infection

- Cyst are ingested from fecally contaminated food or water, sexual transmission also occurs.
- Excystation to 8 motile trophozoites occurs in the small intestine
- The cysts are resistant to gastric acid (and chlorine in water supplies).
- Trophozoites are potentially invasive and multiply by binary fission.
- In an estimated 20% of infections invasion into the wall of the colon with tissue destruction occurs.

Adherence to colonic mucosa is mediated by a lectin on E. histolytics's **surface.**

- The parasite then induces apoptosis of epithelial cells through a channel forming pore protein
- E. histolytica ingests remnant cells.
- Some trophozoites undergo encystation through signalling pathways completing the cycle.

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734. Calabar swelling is produced by?

a) Onchocerca volvulus

b) Loa loa

c) Burgia malayi

d) Wuchereria bancrofti

Correct Answer - B

Ans. is 'b' i.e., Loa - Loa

Loiasis

- Loiasis is caused by L. Loa *(the African eye worm)*
- Habitat of adult worms is subcutaneous connective tissue of man; often in the *sub-conjuctival tissue of the eye.*

The worm passes its life cycle in two hosts :

1) Man & 2) Chrysops (Mango or deer flies)

C/Fs → Asymptomatic microfilaremia, Calabar (fugitive) swelling - subcutaneous swelling, Nephropathy, Encephalopathy (rare), Cardiomyopathy

Calabar swelling is due to hypersensitivity reaction to the adult worm.

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Promastigote form of Leishmania is found in which part of sandfly:
March 2005

a) Lymph node

b) GIT

c) Spleen

d) Bone marrow

Correct Answer - B
Ans. B: GIT

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736. Which stage of Leishmania is found in spleen aspirate of patient ?

a) Amastigote�

b) Promastigote

c) Epimastigote� �

d) Trypomastigote

Correct Answer - A
Ans. is 'a' i.e., Amastigote�*[Ref Essentials of parasitology*�p.*�122]*
Amastigote forms, also known as Leishmania donovani bodies, are found intracellularly in tissues like liver, spleen and bone marrow. A positive bone marrow or spleen aspiration for L.donovani bodies provides confirmation of diagnosis.

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737. Maurer's dots are seen in which species of plasmodium?

a) P ovale

b) P vivax

c) P falciparum

d) P malariae

Correct Answer - C

Ans. is 'c' i.e., P. falciparum *[Ref Chatterjee 12th/e p. 79-80]*

P. vivax → Schuffner's dot

P. malariae → Ziemann's stippling,

P. falciparum → Maurer's dot

P.ovale → Schuffner's dot

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738. Cholangiocarcinoma is caused by:

a) Giardia lamblia

b) Clonorchis **infestation**

c) Paragonimus infestation

d) Ascaris infestation

Correct Answer - B
Ans. b. Clonorchis infestation

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739. Intermediate host is not required for which parasite -

a) Toxoplasma

b) Schistosoma

c) Ancylostoma

d) Fish tapeworm

Correct Answer - C
Ans. is 'c' i.e., Ancylostoma *[Ref Rajesh Karykarte* p. 7]
The sequential stages in growth, development and multiplication constitute its life cycle

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740. Capsid of viral structure is:

a) Extracellular infectious particle

b) Protein coat around nucleic acid

c) Envelop around a virus

d) None of the above

Correct Answer - B
Ans. b. Protein coat around nucleic acid

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741. Smallest DNA virus is?

a) Herpes virus

b) Adenovirus

c) Parvovirus

d) Poxvirus

Correct Answer - C
Ans. is 'c' i.e. Parvovirus
Smallest virus (also smallest DNA virus) → Parvovirus.
Largest virus (also largest DNA virus) → Pox virus.
Smallest RNA virus → Picornavirus
Largest RNA virus → Paramyxoviridae.

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742. All viruses are associated with specific inclusion body, except ?

a) CMV

b) Malluscum contagiosum

c) EBV

d) Yellow fever

Correct Answer - C
Ans. is 'c' i.e., EBV *[Ref Essentials of medical microbiology* p. *791]*

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743. Hand foot mouth disease is caused by ?

a) Enterovirus -70

b) Coxsackie - A virus

c) Coxsackie - B virus

d) Enterovirus

Correct Answer - B

Ans. *is* 'b' i.e., Coxsackie -A virus *[Ref Greenwood le/e p. 459; Ananthanarayan 9th/e* p. *491]*

There are two types of Coxsackie viruses :

.. Coxsackie A (Seotypes 1 to 24) : They cause aseptic meningitis (especially A7 and A9), Herpangina, febrile illness, acute hemorrhagic conjucntivitis (by A24), and 'Hand-foot-mouth disease'.

?. Coxsackie B (Sterotypes 1 to 6): They cause aseptic meningitis (all serotypes), neonatal disease, Bornholm disease (plurodynia or epidemic myalgia), myocarditis, hepatitis, pancreatitis & DM (serotype B4), and pneumonia.

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744. Rash of chickenpox can be differentiated from the rash of small pox by all except ?

a) Pleomorphic

b) Centripetal

c) Deep-seated

d) Unilocular

Correct Answer - C
Ans. is 'c' i.e., Deep-seated
Rash of chickenpox is superficial (not deep seated).

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745. HSV-2 (Herpes simplex) causes ?

a) Oral ulcers

b) Genital ulcers

c) U.T.I.

d) Pharyngitis

Correct Answer - B
Ans. is 'b' i.e., Genital ulcer

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746. HSV-2 causes latent infection in which nerve plexus/ ganglia ?

a) Trigeminal ganglion

b) Otic ganglion

c) Sacral ganglion

d) Ciliary ganglion

Correct Answer - C
Ans. is 'c' i.e., Sacral ganglion *[Ref Essentials of medical microbiology 3'/e p. 1215]*
Site of latency
HSV-1→ Trigeminal ganglion.
HSV-2 → Sacral ganglion.

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747. Which of the following is Hepadnavirus ?

a) HAV��

b) HBV

c) HCV

d) HDV

Correct Answer - B

Ans. is 'b' i.e., HBV[Ref Ananthnarayan 9th/e p. 549 & 8thle p. 545]

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748. Core antigen [HBO in HBV is encloded by which gene ?

a) S

b) C

c) P

d) X

Correct Answer - B

Ans. is `b' i.e., C *[Ref Ananthanarayan 9th/e p. 544]*

- The genome of HBV is made of circular DNA, but it is unusual because the DNA is not fully double stranded -> one of the strands is incomplete and other is complete 4 partially double stranded DNA.
- There are four known genes encoded by genome - 'C' , X', 'P' ,'S'.
- P gene is the largest gene.. X-gene codes for **HBx Ag,** which can transactivate the transcription of cellular and viral genes and may contribute to carcinogenesis. HBx Ag and its antibody are present in patients with severe chronic hepatitis and **hepatocellular carcinoma.**

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749. True about CMV are all except ?

a) Most common cause of post-transpinatation infection

b) Most common cause of transplacental infection

c) A non-enveloped DNA virus

d) Produces intranuclear inclusions

Correct Answer - C
Ans. is 'c' i.e., A non-enveloped DNA virus
CMV is an enveloped DNA virus, belongs to Herpesviridae.

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750. Respiratory Syncytial Virus (RSV) causes all, EXCEPT:

a) Coryza in kids

b) ARDS

c) Bronchitis

d) Common cold

Correct Answer - B
RSV infection leads to a wide spectrum of respiratory illnesses. In infants it can cause pneumonia, bronchiolitis, and tracheobronchitis. In this age group, illness begins most frequently with rhinorrhea, low-grade fever, often accompanied by cough and wheezing.

In adults, the most common symptoms are common cold, with rhinorrhea, sore throat, and cough. It cause severe pneumonia in elderly.

Sinusitis, otitis media, and worsening of chronic obstructive and reactive airway disease are also associated with RSV infection.

Ref: Harrison's Principles of Internal Medicine, 18th Edition, Chapter 186

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751. Rota-teq oral vaccine for rotavirus contains ?

a) 2 reassorted rotaviruses

b) 3 reassorted rotaviruses

c) 4 reassorted rotaviruses

d) 5 reassorted rotaviruses

Correct Answer - D

Ans. is 'd' i.e., 5 reassorted rotaviruses *[Ref Essential of medical microbiology p. 932]* Rota-virus vaccine

- The Rotavirus vaccines are live -attenuated vaccines given orally.

Two new vaccines are now in use -

1. RV5 oral pentavalent vaccine (Rota teq) contains five reassortant rotaviruses developed from 5 human strains on bovine rotavirus background [These five strains are GI, G2, G3, G4 and P (8)]
2. RV1 monovalent vaccine (Rotarix) contains one live attenuated rotavirus strain [the strain is P1 A (8) GI]

- The administration of Rotarix (2 doses) and Rota Teq (3 doses) needs to be completed by 32 weeks of age to minimize any potential risk of intussusception.
- The first licensed rotavirus vaccine, a Rhesus monkey rotavirus - based tetravalent human reassortant vaccine (Rotashield), was withdrawn after this live oral vaccine was associated with development of intestinal intussusception.

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752. What is similar between rotavirus and Norwalk virus ?

a) Both belong to same family

b) Both have segmented genome

c) Both have single stranded RNA

d) Both are causes of viral gastroenteritis

Correct Answer - D
Ans. is 'd' i.e., Both are causes of viral gastroenteritis *[Ref Essentials of Microbiology p. 497]*
Rota virus belongs to reoviridae → double stranded segmented RNA.
Norwalk virus belongs to calciviridae → Single stranded non segmented RNA.
Both Rota virus and Norwalk virus are causes of viral gastroenteritis

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753. Zika virus causes ?

a) Hepatitis

b) Myocarditis

c) Conjunctivitis

d) None of these

Correct Answer - C
Ans. is 'c' i.e., Conjunctivitis
Zika virus (ZIKV) is a flavivirus related to yellow fever virus. It is transmitted by Aedes mosquito.
Zika virus disease (Zika) is a disease caused by the Zika virus, which is spread to people primarily through the bite of an infected

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754. Ebola virus belongs to?

a) Picornaviridae

b) Togaviridae

c) Flaviviridae

d) Filoviridae

Correct Answer - D
Ans. is 'd' i.e., Filoviridae

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755. Polio virus is shed in stool upto-

a) 6 weeks

b) 8 weeks

c) 10 weeks

d) 12 weeks

Correct Answer - D
Ans. is 'd' i.e., 12 weeks
In the faces, the virus is excreted commonly for 2 to 3 weeks, sometimes as long as 3 to 4 months.

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756. True about rhabdoviridae are all except ?

a) Includes vesculostomatitis virus

b) Rabies virus is inactivated by formalin

c) Rabies virus is negative sense double stranded RNA virus

d) All of the above correct

Correct Answer - C

Ans. is 'c' i.e., Rabies virus is negative sense double stranded RNA virus

Rhabdoviridae contains two genera *:?*

1. Vesiculoviruses : Vesculostomatitis virus, chandipura virus.
2. Lyssavirus : Rabies virus.

Rabies virus

- It is an eneveloped, RNA (negative sense ss RNA) virus.
- It has RNA dependent RNA polymerase.
- It is a bullet shaped virus.
- Rabies virus is sensitive to ethanol, iodine preparations, soap, quaternary ammonium compound, detergents and lipid solvents (like ether, chloroform). It is inactivated by phenol, beta-propiolactone (BPL), formalin, Sun light, UV irradiation, and by heat.
- Rabies is primarily a zoonotic disease of warm-blooded animals, particularly carnivorous such as dogs, Cats, Jackals and wolves.
- It is transmitted to man usually by bites or licks of rabid animals.
- It is the communicable disease which is always fatal.
- It is dead end infection in man.

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757. Negri bodies are characteristic of:
September 2008, March 2013

a) Tetanus

b) Rabies

c) Polio

d) AIDS

Correct Answer - B
Ans. B: Rabies
Since first described by Negri in 1903, the presence of the Negri bodies are practically pathognomic for rabies and are an important diagnostic finding.
Negri bodies are discrete, intracytoplasmic, deeply eosinophilic inclusions that measure several microns in diameter. In about 75% of cases of rabies these can be seen on hematoxylin and eosin stained sections.
They occur in neurons of the brain stem, particularly those in the hippocampus, and in the Purkinje cells of the cerebellum.
Ultrastructural studies have shown that Negri body consists of a mass of nucleocapsids surrounded by viral particles budding from intracytoplasmic membranes.
Those bodies can be seen in axons, and it is in this way that virus spreads from the central nervous system to many organs of the body.
Because Negri bodies are usually seen in intact neurons, they are found away from the inflammatory, nonspecific lesions. Rabies viral antigens can be demonstrated in infected cells by means of fluorescent antibody technique.
Antigens can be shown to be present in cells in the absence of Negri

bodies, and hence this technique is much more sensitive than the search of sections of brain for the pathognomonic cytoplasmic inclusions.

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758. CCR5 mutation is related to which condition ?

a) Resistance to HIV infection

b) Susceptibility to HIV infection

c) Resistance to HBV infection

d) Susceptibility to HBV infection

Correct Answer - A

Ans. is 'a' i.e., Resistance to HIV infection *[Ref www.lumenlearning.com]*

- In recent years, scientific interest has been piqued by the discovery of a few individuals from northern Europe who are resistant to HIV infection in 1998, American geneticist Stephen J. O'Brien at the National Institutes of Health (NIH) and colleagues published the result of their genetic analysis of more than 4,000 individuals.
- These indicated that many individuals of Eurasian descent (up to 14% in some ethnic groups) have a deletion mutation, called CCR5 delta 32, in the gene encoding CCR5 is a coreceptor found on the surface of T cells that is necessary for many strains of the virus to enter the host cell.
- The mutation leads to the production of a receptor to which HIV cannot effectively bind and thus blocks viral people homozygous for this mutation have greatly reduced susceptibility to HIV infection, and those who are heterozygous have some protection from infection as well.

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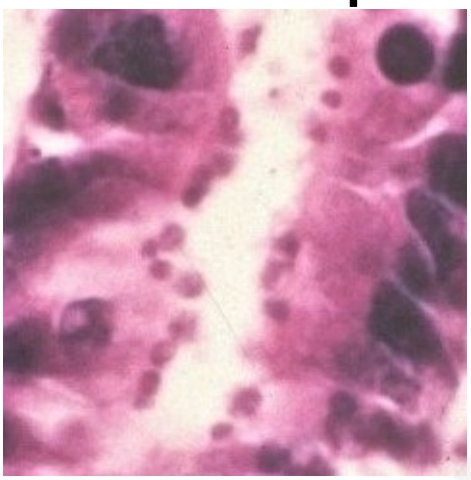
759. A 52-year-old male with HIV presents with profuse, watery diarrhea of 5 days' duration. A biopsy of the small intestine is shown here.What is the most likely cause of this patient's symptoms?



a) *Cryptosporidium.*

b) *Giardia.*

c) *Acanthamoeba.*

d) *Histoplasma.*

Correct Answer - A
The causative organism in this case is **cryptosporidium**, a teeny tiny protozoan.
Cryptosporidium mainly affects children, in whom it causes either self-limited or persistent diarrhea. It also affects patients with AIDS, in whom it causes severe, chronic diarrhea. The organism is highly infectious, and is spread by fecal-oral transmission.

Diagnosis may be made on acid-fast examination of the stool, in which cryptosporidial oocysts are visible as round, red-staining structures. Histologic examination, which is usually not necessary for diagnosis, **shows tiny round organisms projecting from the brush border, as seen in the photomicrograph above**. Treatment involves antiparasitic therapy and nutritional support.

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760. Bloody diarrhea in HIV infected patient is mostly due to ?

a) Cryptosporidium

b) Isospora

c) CMV

d) Salmonella

Correct Answer - C

Ans. is 'c' i.e.,CMV *[Ref www.medscape.com]*

- The most common of the opportunistic infections that cause diarrhea in patients with AIDS are CMV infection, cryptosporidiosis, microsporidiosis, and MAC infection. CMV infection is the most common opportunistic viral infection in the GI tract of HIV-infected patients and can cause problems from the mouth to the anus. It most frequently causes a colitis associated with fever, crampy abdominal pain, and frequent (often bloody) stools.

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761. Sabouraud's dextrose [glucose] agar is used for isolation of -

a) Pseudomonas

b) B. Antracis

c) Fungi

d) Ancylostome

Correct Answer - C

Ans. is 'c' i.e.,Fungi *[Ref Greenwood 10/e* p. 570; *Ananthanarayan 8th/e p. 601]*

Culture media used in mycology are :

1. Sabouraud's glucose agar (most common)
2. Czapek - Dox medium
3. Corn meal agar

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762. Neurotropic fungus is/are -

a) Cryptococcus neoformans

b) Histoplasmosis

c) Trichophyton

d) a and b

Correct Answer - D

Ans. is 'a' i.e., Cryptococcus neoformans; 'b' i.e., Histoplasmosis

Fungi infecting the brain are

- Cryptococcus neoformans
- Blastomyces dermatitidis
- Coccidioides immitis
- Aspergillus sp.
- Candida sp.
- Sporothrix schenckii
- Histoplasma capsulatum

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763. Hair perforation test is positive in infection with ?

a) Trichophyton

b) Microsporum

c) Epidermophyton

d) All of the above

Correct Answer - A
Ans. is 'a' i.e., Trichophyton
Hair perforation test
. The hair perforation test consists of inoculating colonies of an organism into a dish containing a small amount of water, a few drops of yeast extract solution and some human hair. The dish is incubated at 300C and after 7 days, some of the hair are taken and are kept on a slide with a coverslip and are observed under a microscope. The test is considered positive if the hair has deep, narrow wedge shaped perforation in it.
. Hair perforation test is done to distinguish between isolates of dermatophytes, particularly *trichophyton mentagrophytes* and its variants.

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764. Ectothrix is caused by ?

a) T tansurans

b) T violaceum

c) Microsporum canis

d) All of the above

Correct Answer - C

Ans. is 'c' i.e., Microsporum canis *[Ref: Greenwood 16th ie* p. *574]*

- Tinea capitis is dermatophytic infection of scalp and scalp hair. Occurs commonly in children. It is uncommon in adults (in contrast, T.crusis, T.manuum and T.unguium are common in adults). Caused by genera trichophyton or microsporum. As epidermophyton does not affect the hair, Epidermophyton does not cause T.capitis. Two most common species causing T-Capitis are M.canis & T. tonsurans. Tinea capitis may be two types.

..

Endothrix Invasion of hair shaft by fungus. It is caused by T.tonsurans (MC), T.violaceum, T.schoenleinii.

?.

Ectothrix Fungal invasion is restricted to the outer most cuticle of hair. It is caused by M.canis (MC), M.audouini, T.mentagrophytes. As ectothrix is the commonest type of T.capitis, Microsporum canis is the most common cause of T.Capitis

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765. Aspergillus fumigatus is differentiated by other fungi by ?

a) Showing septate hyphae

b) Grow at 45°C

c) Cause respiratory tract infection

d) Most common endemic mycosis

Correct Answer - B

Ans. is 'b' i.e., Grow at 45°C *[Ref Harrison 19th ie* p. *1346; Ananthanarayan 8th/e* p. *613]*

Aspergillus is a mould with septate branching hyphae.

Ability of A. fumigatus to grow at 45° C helps to distinguish it from other species.

Mode of transmission - Inhalation of Aspergillus spores (Conidia) into lungs.

The commonest human disease caused by aspergillus is otomycosis.

Aspergillus infection in neutropenic patient is characterized by hyphal invasion of blood vessels, thrombosis, necrosis and hemorrhagic infarction

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766. Chlamydospore is formed by ?

a) Candida albicans

b) Candida pscitasi

c) Histoplasma

d) Cryptococcus

Correct Answer - A

Ans. is 'a' i.e.,Candida albicans *[Ref Ananthanarayan 8th*le p. *607-608]*

- All candida species pathogenic for humans are also encountered as commensals of humans, particularly in the mouth, stool and vagina.
- They grow rapidly on simple media as oval budding cells at 25° to 37°C.
- In tissue, both yeasts and pseudohyphae are present.
- Candida albicans is differentiated by other candida :
- It forms true hyphae (mycelia) or germ tubes when grown in serum.
- It forms thick walled large spores called chlamydospores when grown in corn meal agar.
- It is dimorphic.

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767. True about cryptococcus are all except

a) Primarily infects lung

b) Urease negative

c) India-ink is used

d) All are true

Correct Answer - B

Ans. is `b i.e., Urease negative

CRYPTOCOCCUS NEOFORMANS

- The only pathogenic yeast
- Four capsular serotypes - A, B, C and D
- It has *polysaccharide capsule*
- *Most infections in immunocompromized patients are caused by serotype A.*
- *Pigeon droppings* commonly contains *serotype A and D.*
- *Eucalyptus tree* contain *serotype B.*
- It is *urease positive.*

Mode of transmission

- By inhalation of the fungus into the lung (most common)
- Through skin or mucosa (some times).

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768. Pneumocystis jerovici is:

a) Associated with CMV

b) Diagnosis is by sputum microscopy

c) Seen only in immunocompromised patients

d) Always associated with pneumatocele

Correct Answer - B

Answer: B. Diagnosis is by sputum microscopy

- Human isolate of. Pneumocystis which is associated with severe pneumonia in immunocompromised state particularly AIDS.
- P. jerovici is an extracellular pathogen. Growth in the lung is limited to surfactant layer above alveolar epithelium.
- Serologic evidence suggest that most individuals are infected in early childhood (thus option “c” is wrong) but the pneumonia is seen only in immunocompromised state.
- Diagnosis is made by detection of organism in proper specimen
- Sputum: Quick and non invasive.
- Broncho-alaeolar laoage (BAL) fluid: Mainstay of pneumocystis diagnosis.
- Transbronchial biopsy: If diagnosis cannot be made by BAL.

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769. Pneumocystis carinii is diagnosed by -

a) Sputum examination for trophozoites and cyst under microscope

b) Culture

c) Positive serology

d) Growth on artificial media

Correct Answer - A
Ans. is 'a' i.e., Sputum examination for trophozoites and cyst under microscope

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770. A 60 years old farmer has developed swelling on the sole of foot with discharging yellow granules. The diagnosis is -

a) Fungal mycetoma

b) Eumycetoma

c) Actinomycosis

d) Candidiasis

Correct Answer - C

Ans. is 'c' i.e., Actinomycosis

Mycetoma

- Is a localized chronic granulomatous involvement of the subcutaneous and deeper tissues, commonly affecting the foot and less often the hand and other parts.
- Presenting as a subcutaneous swelling with multiple discharging sinuses.
- Sinuses discharge seropurulent fluid containing granules.
- These granules are microcolonies of the etiological agents.
- Mycetoma can be caused by both fungus and bacteria

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771. Lipophilic fungus is ?

a) Malassezia furfur

b) Candida

c) Cryptococcus

d) Histoplasma

Correct Answer - A

Ans. is 'a' i.e., Malassezia furfur *[Ref Principles of medical microbiology p. 781]*

- Malassezia furfur (Pityrosporum ovale) is a lipopphilic fungus that is found in areas of the body that are rich in sebaceous glands.
- This fungus causes tinea versicolor (pityriasis versicolor).

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772. Not true about sporothrix Schenckii ?

a) Dimorphic fungus

b) Asteroid bodies

c) Copper penny bodies

d) Common in gardners

Correct Answer - C

Ans. is 'c' i.e.,Copper penny bodies *[Ref Harrison 19th/e p. 1353]*

Copper penny bodies are seen in chromoblastomycosis.

Sporothrix Schenckii

- Sporothrix Schenckii is a dimorphic fungus.
- The organism (sporothrix schenckii) are usually described as tiny, cigar-shaped bodies, 3-5 microns in length, which bear from one to three small oval buds at either or both pales.
- Occasionally a larger asteroid body may be seen.
- Because S. schenckii naturally found in soil, hay, sphagnum moss, and plants, it usually affects farmers, gardeners, and agricultural workers.
- This fungal disease usually affects the skin although rare forms can affect the lungs, joints, bones and CNS.
- Fungus enters through small cuts and abrasions in the skin to cause the infection.
- Because roses can spread the disease, it is one of a few diseases referred to as rose-thorn or rose gardener's disease.

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773. Antibody specificity is due to ?

a) Amino acid sequence at H chain

b) Amino acid sequence at L chain

c) Amino acid at carboxy terminal

d) Amino acid sequence at the amino terminal

Correct Answer - A:B:D
Ans. is 'd > a & b' i.e., Amino acid sequence at amino terminal > Amino acid sequence at H chain & Amino acid sequence at L chain *[Ref Read below]*
Antibody specificity is due to variability of the aminoacid sequences at the variable unit (at aminoterminal) of both H and L chains (not only H or L chains).

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774. Antibody diversity is due to -

a) Gene rearrangement

b) Gene translocation

c) Antigenic variation

d) a and c

Correct Answer - D
Ans. is 'a' i.e., Gene rearrangement; 'c' i.e., Antigenic variation

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775. Specificity of antibody is dependent on ?

a) Fc portion

b) Fab region

c) Carboxy terminal

d) All of the above

Correct Answer - B

Ans. is 'b' i.e., Fab region *[Ref: Harrison 19th/e* p. *372; Ananthanarayan 9thie* p. *100]*

- The infinite range of the antibody specificity of immunoglobulins depends on the variability of the aminoacid sequences at the variable units of H and L chains.
- Variable region is present on Fab region.

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776. Most effective antibody for precipitation ?

a) IgM

b) IgG

c) IgA

d) IgD

Correct Answer - B

Ans. is 'b' i.e., IgG *[Ref Harrison 19th/e p. 372 & 18th/e p. 2674; Ananthanarayan 9thie p. 98 & 8th/e p. 98]*

IgM is more effective than IgG for:

1. Immune hemolysis
2. Opsonization
3. Complement fixation by classical pathway
4. Bacterial agglutination

IgG is more effective than IgM for:

1. Neutralization of toxins & viruses
2. Precipitation reactions.

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777. Complement Fixation test is:
September 2005

a) VIDAL

b) Coombs test

c) Wassermann reaction

d) VDRL

Correct Answer - C
Ans. C: Wassermann reaction
The complement fixation test (CFT) was extensively used in syphilis serology after being introduced by Wasserman in 1906. However, there is now a trend to replace the CFT with the simple flocculation tests.
Although CFT is considered to be a relatively simple test, it is a very exacting procedure because 5 variables are involved. In essence the test consists of two antigen-antibody reactions, one of which is the indicator system.
The first reaction, between a known virus antigen and a specific antibody takes place in the presence of a predetermined amount of complement. The complement is removed or "fixed" by the antigen-antibody complex.
The second antigen-antibody reaction consists of reacting sheep RBC with haemolysin. When this indicator system is added to the reactants, the sensitized RBCs will only lyse in the presence of free complement. The antigens used for CFT tend to be group antigens rather than type-specific antigens. In order for the CFT to be set up correctly, the optimal concentration of haemolytic serum, complement, and antigen should be determined by titration.
The Wassermann test is no longer in use.

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778. A patient is presenting with recurrent staphylococcal infection, kyphoscoliosis and typical faces. The patient is suffering from ?

a) Ig A deficiency

b) Hyper IgE syndrome

c) Common variable immunodeficiency

d) Burton's Agammaglobulinemia

Correct Answer - B

Ans. is 'b' i.e., Hyper IgE syndrome Job's syndrome (Hyper-IgE syndrome)

Job's syndrome, also called Hyper-IgE syndrome or Hyperimmunoglobulin E syndrome, is an autosomal dominant disorder due to mutations in Signal Transducer and Activator of Transcription-3 (STAT-3).

There is defect in phagocytosis. IgE levels are elevated. Other immunoglobulins are normal.

Clinical manifestations include staphylococcal cold abscess, otitis media, recurrent sinopulmonary and skin infections, and cavitary pneumonia with pneumatoceles.

Beside infections, other findings are characteristic facies with brood nose, osteoporosis, kyphoscoliosis, cerebral.

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779. 18 years old girl presents with watery diarrhea. Most likely causative agent -

a) Rota virus

b) V. cholerae

c) Salmonella

d) Shigella

Correct Answer - B

Ans. is 'b' i.e., V. cholerae

Amongst the given options Rotavirus and V. cholerae cause watery diarrhea.

Acute watery diarrha in children is usually bacterial in origin, most commonly due to enterotoxigenic E. coli (ETEC). V cholerae is also a common cause.

Rota virus is the most common cause of diarrhea in infant and children (the patient in question is adult).

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780. Swimming pool conjunctivitis is caused by

a) *Chlamydia trachomatis*

b) *Adenovirus type 8*

c) *Adenovirus type 8*

d) *Gonococcus*

Correct Answer - A
Ans., *Chlamydia trachomatis*

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781. A 30 years old male is having prpductive cough with dysnea. Blood gas analysis shows low pa0_2. Chest x-ray is showing reticulonodular pattern. The causative agent is?

a) Staph aureus

b) Pneumococcus

c) P. jerovecii

d) Pseudomonas

Correct Answer - C
Ans. is 'c' i.e., P. jerovecii *[Ref Read below]*
Reticulo-nodular shadow is seen in interstitial pneumonia.
Among the given options P jerovecii is a cause of interstitial pneumonia.
Other three options are causes of airspace pneumonia.
"Pneumocystis Carinii pneumonia produces a diffuse, symmetric, fine-to-medium reticulonodular pattern".

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782. Most common organism grown in urine culture of pregnant woman with asymptomatic bacteriuria?

a) Proteus

b) E. coli

c) Staph aureus

d) Pseudomonas

Correct Answer - B

Ans. is 'b' i.e., E. coli

- Asymptomatic bacteriuria is the presence of bacteria in a voided urine sample and is caused by bacterial colonization of the urinary tract. It affects about 5 to 10 percent of both sexually active and pregnant women. Asymptomatic bacteriuria is less prevalent in men.
- As the name indicates, asymptomatic bacteriuria does not cause symptoms. The condition simply refers to the detection of bacteria in a urine sample. Nonetheless, there is good reason to be concerned about this infection, particularly if you are pregnant, because it can lead to a symptomatic upper urinary tract infection (namely, pyelonephritis), which can complicate pregnancy.
- Bacteria are typically introduced into the urinary tract during intercourse or when wiping after a bowel movement. The bacterium E. coli is responsible for at least 75 to 80 percent of asymptomatic bacteriuria. Klebsiella pneumoniea, Proteus species, staphylococcal species, enterococci, and group B streptococci can also establish colonization.

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A paitent operated for transurethral resection of prostate [TURP] develops UTI. The organism most commonly grown on culture will be -

a) Proteus

b) E. coli

c) Pseudomonas

d) Listeria

Correct Answer - B
Ans. is 'b' i.e., E. coli *[Ref www.jcam.com]*
Most common organism causing UTI after transurethral prostectomy is E coli.

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784. Cellulitis surrounding diabetic ulcer is mostly caused by ?

a) Streptococcus pyogenes

b) Staphylococcus

c) Mixed organisms

d) Pseudomonas

Correct Answer - C
Ans. is 'c' i.e., Mixed organisms *[Ref Essentials of medical microbilogy p. 712]*
"A mixture of gram-positive cocci and gram-negative acrobes and anaerobes is often implicated in cellulitis surrounding diabetic and decubitus ulcers".

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785. Candidias of penis is ?

a) Thrush

b) Leukoplakia

c) Balanitis

d) None

Correct Answer - C

Ans. is 'c' i.e.,Balanitis *[Ref Essentials of medical microbiology* p. *712]*

- Candidal infections are identified by their location on the body as follows :
- Axillae, under pendulous breasts, groin, intergluteal folds : intertrigo.
- Glans penis : balanitis
- Follicular pustules : candidal folliculitis
- Nail folds : candidal paronychia
- Mouth and tongue : oral cnadidiasis (thrush)
- Area included under diaper -diaper dermatitis

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786. Non-parasitic eosinophilia is caused by infection with -

a) Staphylococcus

b) Ehrlischia

c) Coccidioidomycosis

d) Candidiasis

Correct Answer - C
Ans. is 'c' i.e.,Coccidioidomycosis *[Ref Diagnostic hematology p. 332]*
"One of the very few non-parasitic infections that regularly cause eosinophilia is Coccidioidomycosis, a fungal infection.
atypical pneumonia

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787. Atypical pneumonia can be caused by the following microbial agents *except?*

a) Mycoplasma pneumoniae.

b) Legionella pemmophila

c) Human Corona virus

d) Klebsiella pneumoniae

Correct Answer - D
Answer ***is*** D (Kleibsella pneumonia) :
Causes of Atypical pneumonias .
1. Mycoplasma pneumonias
2. Viral pneumonias - Influenza
- RSV
- Adenovirus
- Rhinovirus
- Rubeola
- Varicilla
- Corona virus
3. Chlamydia pneumonia
4. Coxiella bumetti
5. Pneumocystis carinii
6. Legionella

Corona virus is an infrequent cause of pneumonia.
SARS associated corona virus *(SARS - CoV) caused epidemic of pneumonia from Nov 2002 to July 2003 - Harrison*

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788. Health index characteristics are all except ?

a) Validity

b) Reliability

c) Affordability

d) Feasibility

Correct Answer - C

Ans. is 'c' i.e., Affordability

There has been some confusion over terminology: health indicator as compared to health index (plural: indices or indexes).

It has been suggested that in relation to health trends, the term indicator is to be preferred to index, whereas health index is generally considered to be an amalgamation of health indicators (56).

Characteristics of indicators

Indicators have been given scientific respectability: for example ideal indicators.

- Should be valid, i.e., they should actually measure what they are supposed to measure;
- Should be reliable and objective, i.e., the answers should be the same if measured by different people in similar circumstances.
- Should be sensitive, i.e., they should be sensitive to changes in the situation concerned.
- Should be specific, i.e., they should reflect changes only in the situation concerned,
- Should be feasible, i.e., they should have the ability to obtain data needed, and;
- Should be relevant, i.e., they should contribute to the understanding

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of the phenomenon of interest.

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789. True for epidemiological t*riad*

a) Time, place, person

b) Agent, host, environment

c) Disease, prevention, treatment

d) Agent, man, disease

Correct Answer - B

Ans: B i.e. Agent, host, environment

Epidemiological triad

The occurrence and manifestations of any disease, whether communicable or noncommunicable, are determined by the interaction of the following three factors.

1. The agent
2. The host
3. The environment

These three factors together constitute the epidemiological triad. Mere presence of these factors does not cause disease, the interaction of these three is required for the causation of a disease.

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790. PQLI is

a) Objective component of level of living

b) Subjective component of level of living

c) Objective component of quality of life

d) Subjective component of quality of life

Correct Answer - D

Ans. is 'd' i.e., Subjective component of quality of life

<u>Subjective component</u>

- The subjective component of well being is quality of life.
- The level of living and standard of living are objective criteria of well being, while the quality of life comprises the individual's subjective evaluation of these.
- The recent definition of quality of life is as follows "a composite measure of physical mental and social well being as perceived by each individual or group of individuals."
- WHO definition is as follows "the condition of life resulting from the combination of the effects of the complete range of factors such as those determining health, happiness, education, etc."
- The index for quality of life is "Physical quality of life index (PQLI)".
- The PQLI is an attempt to measure the quality of life or well-being of a country.
- Physical quality of life index consolidates three indicators:-
- Literacy rate
- Infant mortality rate
- Life expectancy at age 1 year (LEI)
- PQLI ranges from 0 to 100.
- PQLI in India is 65.

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791. Only disease which is eradicated worldwide ?

a) Small pox

b) Polio

c) Diphtheria

d) Measles

Correct Answer - A
Ans. is 'a' i.e., Small pox
Eradication implies termination of all transmission of infection by extermination of infectious agent.
It is an absolute process, i.e. all or none phenomenon.
It literally means "tearing out by roots".
Eradication is a "global term" used only cessation of infection from the whole world.
Smallpox is the only disease that has been eradicated.
Other diseases which are candidates for global eradication Polio, measles, dracunculiasis, diphtheria.

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792. Endemic disease is defined as -

a) Disease occuring regularly in expected frequency

b) Disease occuring irregularly

c) Disease occuring in excess of expected freqency

d) Disease affecting a large population

Correct Answer - A

Ans. is 'a' i.e., Disease occuring regularly in expected frequency *[Ref Park 23"/e p. 93 & 22"/e p. 89]*

Sporadic → Disease occuring irregularly from time to time.

Endemic → Disease occuring regularly in expected frequency.

Epidemic → Disease occuring in excess of expected frequency.

Pandemic → Epidemic affecting a large proportion of population over a wide geographic area.

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793. Median incubation period is ?

a) Maximum time from exposure to development of symptoms in all cases

b) Minimum time from exposure to development of symptoms in all cases

c) Time from exposure to development in 50% of cases

d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Time from exposure to development in 50% of cases

Incubation period is the *time interval between invasion by an infectious agent and appearnace of the first sign and symptom.*

'Median incubation period' is the time required for 50% cases to occur following exposure.

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794. Standpipe in rural oreas is an example of which principle of primary health care?

a) Equitable distribution

b) Community porticipation

c) Intersectoral coordination

d) Appropriate technology

Correct Answer - C

Ans. is 'c' i.e., Inter-sectoral coordination *[Ref Primary heath care online; Park 23'/e p. 742]*

- Public works, eg. ensuring an adequate supply of safe water (Stand pipe) and basic sanitation, comes under inter-sectoral coordination (multi-sectoral approach).

Intersectoral coordination

- The primary health care is not provided by health sector alone.
- It involves all other related sectors of national and community development, in particular agriculture, animal husbandry, food, industry, education, housing, public works (e.g. an adequate supply of safe water and basic sanitation), communication and other sectors.

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795. Secondary attack rate is a measure of-

a) Communicability

b) Lethality

c) Strength of association

d) None

Correct Answer - A
Ans. is 'a' i.e., Communicability

- SAR is an important measure of communicability.
- Higher secondary attack rate means, more numbers of susceptible contacts are developing the disease after exposure to primary case.
- So, higher the SAR higher is the communicability (infectiousness) of disease.

One term related to secondary attack rate is attack rate and requires specific mention here (Has been explained in brief previously)
Attack Rate:
When new cases occur rapidly over a short period of time in a well defined population the attack rate is used. o It is usually *expressed as a percentage.*

$$\text{Attack Rate} = \frac{\text{new cases occuring during a short period of time}}{\text{population at risk at the beginning of the time perion}} \times 100$$

The attack rate is also called cumulative incidence rate. It differs from the conventional incidence rate in that it tends to describe disease or events that affect a larger proportion of the population of interest

interest.
Attack rate is used when *"population is exposed to riskfor a limited period of time, Such as epidemic."* Attack rate effects the extent of epidemic.
Attack rate vs secondary attack rate
Attack rate includes new cases during a specific period of time (which is usually short) and it includes all the cases during that period, i.e. primary as well as secondary cases.
On the other hand secondary attack rate includes new cases which develop within the range of incubation period after exposure to primary case, i.e. it includes only secondary case (not primary cases).

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796. A population of 50 children is having 10 immunized against chickenpox. 5 children developed chickenpox on march 2017. Other 28 children developed chickenpox within next 2 week what is the SAR of chickenpox?

a) 60%

b) 70%

c) 80%

d) 90%

Correct Answer - C

Ans. is 'c' i.e., 80% [Ref: Park Mlle p. 105-107 & 23ra/e p.100]

- Primary cases in the question → 5 (developing chickenpox on same day)
- Immune children → 10
- Susceptible contacts → Total children - (Primary cases + immunized children) = 50 - (5+10) = 35
- No. of susceptible developing desease = 28

No of susceptible developing disease x 100 = 80%
Total number of susceptiblesx

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797. Denominator in under -5 proportional mortality rate?

a) Number of death under 5 years of age

b) Mid-year under - 5 population

c) Total deaths

d) Mid- year population

Correct Answer - C
Ans. is 'c' i.e., Total deaths

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798. Berkesonian bias is a type of ?

a) Admission rate bias

b) Interviever bias

c) Information bias

d) Recall bias

Correct Answer - A

Ans. is 'a' i.e., Admission rate bias [Ref: Park 24thle p. 78-79]

Berkesonian bias

- Berksonian bias results from the greater probability of hospital admission for people with two or more disease than for people with one disease. So, it is also known as *admission rate bias.*

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799. True about iceberg of disease ?

a) Clinician is concerned with hidden portion of iceberg

b) Tip of the iceberg represent clinical cases

c) Tetanus is classical example

d) Screening is done for Tip of the iceberg

Correct Answer - B

Ans. is 'b' i.e., Tip of the iceberg represent clinical cases

Iceberg of disease

* Disease in a community may be compared with an iceberg.
* The floating *tip of the iceberg* represents what the physician sees in the community, *i.e. clinical cases (Diagnosed case, symptomatic case of the clinically apparent case).*
* The vast *submerged portion of the iceberg* represents the hidden mass of disease, i.e. latent, inapparent, presymptomatic and undiagnosed cases and carriers in the community.
  - *The "waterline" represents the demarcation between apparent and inapparent disease.*
  - An epidemiologist is concerned with the hidden portion of the iceberg whereas the clinician is concerned with the tip of the iceberg.
  - Screening is done for a Hidden portion of the iceberg whereas diagnosis is done for the tip of the iceberg.
* *The iceberg phenomenon of disease is not shown by Rabies, Tetanus, Rubella, and Measles.*
* The clinician concerned only with the tip of iceberg, i.e symptomatic cases that are seen in clinical treatment, this can result in inaccurate view of the nature and causes of a disease results because the minority of the cases are studied (hidden cases:-

submerged portion of iceberg is not studied) --> Clinician's Fallacy.

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800. Live influenza vaccine is given by which route ?

a) Intradermal

b) Subcutaneous

c) Intramuscular

d) Intra nasal

Correct Answer - D

Ans. is 'd' i.e., Intranasal *[Ref Park 24thie* p. *168]*

The routes of important vaccines are *:?*

- Subcutaneous : Measles, rubella, killed influenza, killed cholera, IPV, yellow fever.
- Intramuscular : Mumps, killed influenza, typhoid Vi-polysaccharide, DPT (deep intramuscular), rabies, IPV. iii)Intradermal : BCG, rabies.
- Nasal : Live influenza.
- Oral : OPV, oral cholera, oral typhoid (typhoral).

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801. Which of the following is true ?

a) Two live vaccines should not be given together

b) Live and killed vaccine should not be given together

c) Immunoglobolin should not be given for at least 6 weeks when a live vaccine is administered

d) Live vaccine should not be given for 12 weeks if immunoglobin has been given

Correct Answer - D

Ans. is 'd' i.e., Live vaccine should not be given for 12 weeks if immunoglobin has been given.

Two live vaccines can be given simultaneously, but they should be given at different sites. Otherwise they should be given at an interval of at least 3 weeks (if administered at same site).

Live and killed vaccine can be given together.

Live vaccines should not normally be given for 12 weeks after an injection of normal human Ig and if a live vaccine has already been given, Human Ig injection should be deferred for 2 weeks.

802. HALE is used to measure

a) Disability adjusted life expectancy

b) Healthy life expectancy

c) Quality adjusted life expectancy

d) Expectancy free of disability

Correct Answer - B

Ans. is 'b' i.e., Healthy life expectancy

Health-Adjusted life expectancy (HALE)

- HALE is the indicator used to measure a healthy life expectancy.
- HALE is based on the life expectancy at birth but includes an adjustment for time spent in poor health.
- It is the equivalent number of years in full health that a newborn can expect to live based on current rates of ill health and mortality.

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803. During investigation of an epidemic, the area is declared free of epidemic when?

a) Twice the incubation period of the disease since occurrence of the last case

b) Thrice the incubation period of the disease since occurrence of the last case

c) The longest incubation period for the disease

d) Incubation period for the disease plus two standard deviations

Correct Answer - A

Ans. is 'a' i.e., Twice the incubation period of the disease since occurrence of the last case *[Ref Park 22"d /e* p. *123]*

There are following steps in the investigation of an epidemic *:?*

1. Verification of diagnosis : This is the first step in investigation of an epidemic.
2. Confirmation of existence of an epidemic : By comparing with disease frequencies during same period in previous years.
3. Defining the population at risk.
4. Rapid search for all cases and their characteristics : Search for new cases is carried out everyday, till the area is declared free of epidemic; this period is usually taken as "twice the incubation period of the disease since the occurance of last case".
5. Data analysis.
6. Formulation of hypothesis.

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804. Specific content in malaria vaccine is?

a) Gametocytic protein

b) Polysaccharide sheath

c) Sporozoite protein

d) Lipoprotein envelop

Correct Answer - C

Ans. is 'c' i.e., Sporozoite protein [Ref Internet]

- Circumsporozoite protein (CSP) is a secreted protein of the sporozoite stage of the malaria parasite (plasmodium sp) and the antigenic target of RTS,S, a pre-erythrocytic malaria vaccine currently undergoing clinical trails. The amino- acid sequence of CSP consists of an immunodominant central repeat region flanked by conserved motifs at the N-and C-termini that are implicated in protein processing as the parasite travels from the mosquito to the mammalian vector.
- The structure and function of CSP is highly conserved across the various strains of malaria that infect humans non-human primates and rodents.
- It can first be detected in large quantities as sporozoites are forming within oocysts residing the midgut walls of infected mosquitoes Upon egression from mature oocysts, sporozoits begin migrating to the salivary glands, and CSP is known to be an important mediator of this process. Additionally CSP is involved in hepatocyte binding in the mammalian host.
- Here the N-terminus and central repeat region initially facilate parasite binding. Once the hepatocyte surface proteolytic cleavage at region 1 of the N-terminus exposes the adhesive domian of the C-terminus, thereby priming the parasites for invasion of the liver.

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805. Role of magnesium [Mg] in OPV?

a) Adjuvant

b) Preservative

c) Stabilizar

d) Antiinfective

Correct Answer - C
Ans. is 'c' i.e., Stabilizer *[Ref www.who.int]*
"Polio Sabin (oral) vaccine is a magnesium chloride stabilized preparation of live attenuated polio viruses of sabin strains type 1, 2, er 3" Stabilizers
These are used to confirm product quality or stability. Examples are potassium or sodium salts, lactose, human serum albumin, gelatin and bovine serum albumin

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806. The difference between descriptive and analytic studies?

a) Descriptive studies are used to test hypothesis

b) Analytic studies are used to formulate a hypothesis

c) Descriptive studies are first phase in epidemiology

d) Analytic studies observe distribution of disease

Correct Answer - C

Ans. is 'c' i.e., Descriptive studies are first phase in epidemiology *[Ref Park 24thie p. 67-75]*

Descriptive studies are first phase of an epidemiological investigation. These studies are concerned with observing the distrubution of disease in time, place and person. Descriptive studies are used to formulate eitological hypothesis.

Analytical studies are the second major type of epidemiological studies (after descriptive studies). It contrast to descriptive studies that look at entire population, in analytic studies, the subject of interest is the individual within the population (except in ecological study). The object is not to formulate, but to test hypothesis.

In experimental studies, epidemiologist actively intervene to change a disease determinant or progression of disease. Experimental studies are used for testing hypothesis.

807. Strength of association of outcome and risk factor is measured by?

a) Relative risk

b) Attributable risk

c) Population attributable risk

d) None of the above

Correct Answer - A

Ans. is 'a' i.e., Relative risk *[Ref: Park 24`Ve* p. *83]*

Relative risk is a direct measure of the strength of association between suspected cause and effect. For example a relative risk of 2 means that the incidence rate is 2 times higher in the exposed group as compared with unexposed -> i.e., a 100% increase in risk. On the other hand, attributable risk indicates the extent which is attributed by risk factor (exposure) to disease. For example attributable risk of 90% means 90 percent of disease among exposed is due to exposure to risk factor.

In simple words :?

- Relative risk indicates the increased percentage of risk of developing a disease, if person is exposed to risk factor.
- Attributable risk indicates the percentage of disease which is attributed by risk factor among the exposed.
- Relative risk is a better index than is attributable risk for assessing the etiological role of a factor in disease.

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808. Important measure for National health policy?

a) Relative risk

b) Odds ratio

c) Incidence

d) Attributable risk

Correct Answer - D

Ans. is 'd' i.e.,Attributable risk *[Ref Park 24th/e p. 83]*

Relative risk Vs Attributable risk

- Relative risk is a direct measure of the strength of association between suspected cause and effect. For example a relative risk of 2 means that the incidence rate is 2 times higher in the exposed group as compared with unexposed - i.e., a 100% increase in risk.
- On the other hand, attributable risk indicates the extent which is attributed by risk factor (exposure) to disease. For example attributable risk of 90% means 90 percent of disease among exposed is due to exposure to risk factor.
- In simple words :-
- Relative risk indicates the increased percentage of risk of developing a disease, if person is exposed to risk factor.
- Attributable risk indicates the percentage of disease which is attributed by risk factor among the exposed.
- Relative risk is a better index than is attributable risk for assessing the etiological role of a factor in disease.
- On the other hand, attributable risk gives a better idea than does relative risk of the impact of successful preventive or public health programme might have in reducing the problem. That means attributable risk reflect the public health importance better than

relative risk.

809. A study that gives the prevalence of delusion in the elderly at a given point of time?

a) Case-control study

b) Cohort study

c) Cross-sectional study

d) Ecological study

Correct Answer - C

Ans. is 'c' i.e., Cross-sectional study

Cross-sectional studies

- A cross-sectional study is the simplest form of an observational study.
- It is also known as a prevalence study.
- It is based on a single examination of a cross-section of the population at one point of time.
- The results of this examination can be projected on the whole population.
- The cross-sectional study tells about the distribution of a disease rather than its etiology.
- Cross-sectional studies can be thought of as providing a snapshot of the frequency and characteristic of a disease in a population at a particular point in time.
- A cross-sectional study is more useful for chronic disease, as the population is studied at once, no follow-up is required.

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810. 100 individuals are diagnosed with lung cancer in a population of 100000. Out of 100 patients, 80 were smokers and 20000 were smokers in totals population. What is PAR?

a) 60

b) 75

c) 80

d) 90

Correct Answer - B

Ans. is 'b' i.e., 75 ***[Ref Park 24 1th Ie*** **p.** ***83]***

In the given question :

- Incidence in total population = 100 per 1 lac
- Number of exposed = 20000 (All exposed)
- Number of non-exposed = 80000 (100000 - 20000)
- Non-exposed having lung cancer=20 (out of 100 patients 80 were smoker. Thus 20 are noneexposed)
- Incidence among non-exposed = 20 per 80000 or 25 per 100000

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811. Recall bias is most commonly associated with which study design -

a) Case control study

b) Cohort study

c) Cohort case control study

d) Cross-sectional study

Correct Answer - A

Ans. is 'a' i.e., Case control Study

Recall bias (Memory bias) :

This type of bias may occur when cases and controls are asked to recall certain events, and subjects in one group are more likely to remember the event than those in the other group.

For example people take aspirin commonly and for many reasons, but patients diagnosed as having peptic ulcer disease may recall the ingestion of aspirin in greater accuracy than those without G1 problems. Also patients who have had an MI are more likely to recall and remember certain habits (like eating habit) with greater accuracy than those who have not had an MI.

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812. True about standardization are all except?

a) Most commonly used for age differences

b) Direct standardization is used when population is large

c) Age specific rates are required in indirect standardization

d) All are correct

Correct Answer - C

Ans. is 'c' i.e., Age specific rates are required in indirect standardization *[Ref: Park 23"/e p. 58]*

Indirect standardization

- When the population is small (or outcome is rare) the number of events observed can be small.
- In that circumstance, indirect standardized methods can be used to produce a standardized mortality rate (SMR) or a standardized incidence rate (SIR).
- In indirect standardization, one computes the number of events (mortality) that would have been expected if the event rates (mortality rate) from the standard population had applied in the study population, i.e. age specific rates of standard population are applied to study population (opposite to direct standardization).
- Study population is used to provide age specific death rates.
- Within each age stratum, one multiplies the age specific rate of standard population by the number of people in the study population to determine the number of cases that would have expected if that were the rate in the study group
- These expected numbers are added up across all age groups and divided into the observed number to yield the SMR.
- Advantage of indirect standardization is that age specific rates of

study population are not required.

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813. Standardization is most important for?

a) Sex distribution

b) Age distribution

c) Disease distribution

d) None of the above

Correct Answer - B

Ans. is 'b' i.e., Age distribution ***[Ref Park 23rd Ie p. 58]***

Standardization is most commonly used for age.

A standardizated death rate (ASDR) is the best mortality indicator.

'Crude death rate' is to be standardized for age for comparison of two population, as age composition is different.

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814. Standardized death rates are used because health?

a) For valid comparisom of two groups of different health determinants

b) Calculations are more accurate

c) To avoid selection bias

d) All of the above

Correct Answer - A

Ans. is 'a' i.e., For valid comparison of two groups of different health determinants *[Ref Park 23rd /e p. 58]*

Standardization (or adjustment) of rates is used to unable the valid comparison of groups that differ regarding an important health determinant (most commonly age). For example, if we want to compare the death rates of two different populations with different age composition, the crude death rate is not right yardstick because rates are only comparable if the populations upon which they are based are comparable.

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815. True about cohort study

a) Descriptive study

b) Incidence study

c) Proceeds from effect to cause

d) All are correct

Correct Answer - B
A cohort study is a type of analytic observational study
Cohort study proceeds forward from cause to effect, i.e., the disease has not occurred in subjects (In contrast to case-control study which proceeds backward from effect to cause).
It is also known as Prospective study, longitudinal study, Incidence study, forward-looking study.
The features of cohort studies are :
The cohorts are identified before the appearance of the disease under investigation.
The study groups, so defined, are observed over some time to determine the frequency of disease among them.
The study proceeds forward from cause to effect.

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816. All are true about natural experiments, except?

a) Researcher has no control over the allocation of subjects

b) James lind experiment is an example

c) Includes Randomized controlled trials [RCTs]

d) All are correct

Correct Answer - C

Ans. is 'c' i.e., Includes Randomized controlled trials [RCTs] ***[Ref Modern epidemiology p. 397]***

Natural experiments are those in which exposure to the event or intervention of interest has not been manipulated by researcher. The individuals exposed to the experimental and control conditions are determined by nature or by other factors outside the control of the investigators.

When a naturally occurring event or situation is exploited by a researcher to help answer a research question, it is called a natural experiment. The researcher has little or no control over the situation that is being observed.

A good example of natural experiment is one by James Lind in 1747 on the prevention of scurvy among sailors. He compared the effects of different acidic substances, ranging from vinegar to cidr, on grups of afflicted sailors, and found that the group who from vinegar to cidr, on groups of afflicted sailors, and found that the group who were given oranges and lemons had largely recovered from scurvy after 6 days.

Other important example is John Snow's natural experiment on cholera linked with contaminated water.

RCT is not natural experiment as researcher allocate the individuals

in study and control group by randomization.

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817. In a study a patient does not know the nature of drug [whether a placebo or curative drug] he is taking. The researcher knows the drug type to be given to the individuals in study. Types of blinding in this study is ?

a) Single

b) Double

c) Triple

d) Combined double /triple

Correct Answer - A

Ans. is 'a' i.e., Single *[Ref Park 24'1* p. 78]*

Single blinding	Study subjects are not aware of the treatment they are receiving
Double blinding	Study subjects as well as investigator are not aware of the treatment study subjects are receiving
Triple blinding	Study subjects, investigator as well as analyzer are not aware of the treatmc study subjects are receiving

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818. **Which Passive immunity is also provided through colostrum and breast milk?**

a) IgG

b) IgA

c) IgE

d) IgM

Correct Answer - B

Ans. B. IgA

Passive immunity is also provided through **colostrum and breast milk,** which **contain IgA antibodies** that are transferred to the gut of the infant, providing local protection against disease-causing bacteria and viruses until the newborn can synthesize its own antibodies. Protection mediated by IgA is dependent on the length of time that an infant is breastfed, which is one of the reasons the World Health Organization recommends breastfeeding for at least the first two years of life.

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819. Mid year population is estimated on ?

a) 1st March

b) 1st July

c) 1st April

d) 15th August

Correct Answer - B

Ans. is 'b' i.e., 1St July *[Ref Park 22"/e p. 58 & 21"/e p. 52]*

Denominator in crude death rate is mid year population, which is estimated on first of July of an year.

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820. Meningococcal vaccine contains ?

a) 50 mcg of polysccharide of each strain

b) 100 mcg of polysccharide of each strain

c) 1000 mcg of polysccharide of each strain

d) 5000 mcg of polysccharide of each strain

Correct Answer - A

Ans. is 'a' i.e., 50 mcg of polysaccharide of each strain *[Ref Park 24th/e p. 176]*

Vaccines are available for group A, C, Y and W-125. There is no group B vaccine available at present. Vaccines are prepared from capsular polysaccharide.

Bivalent (A, C), trivalent (A, C, W135), and tetravalent (A, C, W135, Y) vaccines are available.

The vaccines contain 50 mcg of polysaccharide of each individual strain.

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821. How many doses of monovalent meningococcal 'C' vaccine is given in Infants ?

a) One

b) Two

c) Three

d) Four

Correct Answer - B

Ans. is 'b' i.e., Two *[Ref Park 24th/e p. 176]*

Monovalent Men A conjugate vaccine should be given as a single dose to individuals 1-29 years of age.

For monovalent Men C conjugate vaccine, one single intramuscular dose is recommended for children aged > 12 months, teenagers and adults.

Children 2-11 months of age require 2 dose administration at an interval of at least 2 months and a booster about 1 year thereather.

Quadrivalent vaccines are administered as a single dose to individuals aged 2 years.

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822. Secondary attack rate of mumps:?

a) 75%

b) 85%

c) 95%

d) < 50%

Correct Answer - B

Ans. is 'b' i.e., 85% ***[Ref Park 23'/e p. 147 & 22"d/e p. 139-140]*** **SAR of some important infectious diseases**

Measles	**80%**
Rubella	**90 - 95%**
Chicken pox	**90%**
Pertussis	**90%**
Mumps	**86%**

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823. Isolation period of TB ?

a) 2 days after treatment

b) 1 week after treatment

c) 2 weeks after treatment

d) 3 weeks after treatment

Correct Answer - D

Ans. is 'd' i.e., 3 weeks after treatment ***[Ref Park 24th/e p. 129]***

Period of isolation recommended

Tuberculosis (sputum +) → 2 weeks adult, 6 weeks paediatric.

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824. Sensitivity of a screening test tells about

a) Percentage of disease people among those with a positive test

b) Percentage of disease people among those with a negative test

c) Percentage of healthy people among those with a negative test

d) Percentage of healthy people among those with a positive test

Correct Answer - A

Ans. is 'a' i.e., Percentage of disease people among those with a positive test

Sensitivity: Ability of a screening test to identify correctly all those who have the disease (Cases).

Specificity: Ability of a screening test to identify correctly all those who don't have the disease (healthy).

Positive predictive value (PPV): Ability of a screening test to identify correctly all those who have the disease, out of all those who test positive on a screening test.

Negative predictive value (NPV): Ability of a screening test to identify correctly all those who don't have the disease, out of all those who test negative on a screening test.

When a screening test is used to diagnose a disease, the test outcome can be positive (diseased) or negative (healthy), while the actual health status of the person may be different. In that setting :

- True positive → Diseased people correctly diagnosed as diseased.
- False positive → Healthy people wrongly identified as diseased.
- True negative → Healthy people correctly identified as healthy.
- False negative → Diseased people wrongly identified as healthy.

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825. If effective treatment for a disease is introduced in a community, what will be the effect on incidence [I] and prevalence [P] ?

a) No change in P & I

b) Both P & I will decrease

c) P will decrease & I will increase

d) P will decrease & I will remains the same

Correct Answer - D

Ans. is 'd' i.e.,P will decrease & I will remains the same *[Ref Park 24th/e p. 66 & 23rdie p. 62]*

New effective treatment will cure the patient and thereby decrease the duration of disease.

So, new effective treatment will affect the duration of disease.

Incidence measures the rate at which new cases are occurring in a population, It is not influenced by duration. So, new effective treatment will have no effect on incidence.

On the other hand, prevalence will decrease due to decrease in duration of disease.

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826. A screening test has sensitivity of 90% and specificity of 99%. The prevalence of disease under investigation is 5 per 1000 population. What is the PPV of the given screening test?

a) 10

b) 70

c) 33

d) 99

Correct Answer - C

Ans. is 'c' i.e.,33 ***[Ref Park 23rd/e p. 139 & 22"d/e p. 132; Hopefield biostatistics 4th/e p. 49]***

Positive predictive value is related to sensitivity specificity and prevalence.

This relationship is represented by Baye's theorem : -

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827. Best indicator for spread of TB in a community?

a) Annual infection rate

b) Prevalence of infection

c) Case rate

d) Incidence of new cases

Correct Answer - A

Ans. is 'a' i.e., Annual infection rate *[Ref Park 24thIe p. 191-195 & 23'/e p. 177]*

The following epidemiological-indices are used in tuberculosis problem measurement and programme strategy

1. Prevalence of infection

- It is the percentage of individuals showing positive tuberculin test.

2. Incidence of infection (Annual infection rate)

- It is the percentage of population under study who will be newly infected by M.tuberculosis among the non-infected of the preceding survey during the course of one year.
- It expresses the attacking force of tuberculosis and is also known as tuberculin conversion index i.e. percentege of new people becoming tuberculin positive.
- In developing countries, *every 1% of annual infection rate is said to correspond to 50 new cases* of smear positive pulmonary TB, per year, for 100000 general population.
- It is the best indicator for evalution of TB problem and its trend.
- In India, annual infection rate/tuberculin conversion index is 1.7%.

3. Prevalence of disease or case rate

- It is the percentage of individuals whose sputum is *positive for tubercle bacilli* on *microscopic examination.*

- It is the best available practical index to estimate the number of infectious cases or case load in a community.

4. Incidence of new cases

- It is the percentage of new TB cases (confirmed by bacteriological examination) per 1000 population occurring during one year.

5. Prevalence of suspected cases

- This is based on X-ray examination of chest.

6. Prevalence of drug resistant cases

- It is the prevalence of patient excreting tubercle bacilli resistant to anti-tubercular drugs.

7. Mortality rate

- The number of deaths from tuberculosis every year per 1,000 population.

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828. For diagnosis of TB, Sputum microscopy has ?

a) High sensitivity & high specificity

b) High sensitivity & low specificity

c) Low sensitivity & high specificity

d) Low sensitivity & low specificity

Correct Answer - D

Ans. is 'd' i.e.,Low sensitivity & low specificity

- Most rapid method of diagnosis for TB Sputum microscopy.
- But, sputum microscopy has low sensitivity and specificity.
- Most reliable method for diagnosis of TB -> Culture of tubercular bacilli.

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829. Varicella zoster virus infection is more likely to occur in which of the following month?

a) March

b) August

c) October

d) November

Correct Answer - A
Ans. is 'a' i.e., March [Ref: CECIL Vol. 1, p.1840]
"Varicella occurs most commonly during the late winter and spring months, the peak being about in March"

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830. Most common influenza virus causing disease?

a) Type A

b) Type B

c) Type C

d) Type D

Correct Answer - A

Ans. is 'a' i.e., Type A [Ref Park 24th/e p. 163-166]

- There are three viral subtypes : Type A (causes all pandemics and most epidemics); type B; and type C (not circulating currently).
- Currently the influenza viruses circulating in the world are : H, N, of type A (causes swine flu); H2N2 of type A; H3N2 of type A ; H5N, of type A (causes birdflu or avian influenza); 117 N9of type A (caused epidemic of avian influenza in China in 2013); and type B.
- Influenza shows cyclic trend with epidemic occuring every 2-3 years in case of influenza - A and every 4-7 years in case of influenza-B. Pandemics are caused by only influenza - A every 10-15 years.
- Influenza affects all ages and both sexes.
- Source of infection of influenza is a clinical case or subclinical case.
- Major reservoir of influenza virus exists in animal and birds.

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831. Mammalian reservoir for R. prowazekii ?

a) Rodents

b) Dog

c) Cattle

d) Humans

Correct Answer - D

Ans. is 'd' i.e., Humans [Ref Park 24th/e p. 316, 319]

Disease	Agent	Insect vector	Mammalian reservoir
Typhus group			
a) Epidemic typhus	R. prowazekii	Louse	Humans
b) Murine typhus (Endemic typhus)	R. typhi	Flea	Rodents
c) Scrub typhus	R. Tsutsugamushi	Mite	Rodents

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832. **Rotavirus vaccine doses should not be initiated beyond which age to prevent complications:**

a) 6 weeks

b) 10 weeks

c) 12 weeks

d) 32 weeks

Correct Answer - C

Two live attenuated oral rotavirus vaccines have been licensed for use rotateq and rotarix.
The first dose of these vaccines should be given no later than 12 weeks.
In case of rotarix, vaccination must be completed by 24 weeks.
In case of rotate, last dose of vaccine should be administered by 32 weeks.
Risk of intussusceptions increase if first dose is administered beyond 12 weeks.
Ref: Park 21st edition, page 205.

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833. Minimum accepted interval between two doses of DPT vaccine?

a) 2 weeks

b) 4 weeks

c) 6 weeks

d) 8 weeks

Correct Answer - B
Ans. is 'b' i.e., 4 weeks [Ref Park 24th/e p. 172]
Total three doses are given in primarly immunization with an interval of 4 weeks between three doses. First booster is given at 16-24 months with second booster at 5-6 years.
DPT, → 6 weeks of age
DPT, → 10 weeks of age
DPT, → 14 weeks of age
DPTim,, → 16-24 months of age
ter DPTB → 5 years of age

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834. Post-exposure prophylaxis is indicated in *?*

a) HBV

b) Rabies

c) Diphtheria

d) All

Correct Answer - D

Ans. is 'a' i.e., HBV; 'b' i.e., Rabies; 'c' i.e., Diphtheria

Read the question carefully, examinar is asking about postexposure prophylaxis (not post-exposure immunization). o In previous explanation, I have explained the diseases for which post-exposure prophylaxis is done by immunization
(vaccine or immunoglobulin or both).

In some diseases post-exposure prophylaxis is done by drugs, i.e., *post-exposure chemoprophylaxis : -*

- HIV → Antiretroviral therapy
- Herpes → Famciclovir
- Diphtheria
- Miningococcal meningitis

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835. Healthy carrier is seen in?

a) Measles

b) Rubella

c) Meningococcal meningits

d) Influanza

Correct Answer - C

Ans. is 'c' i.e., Meningococcal meningitis *[Ref Park 24th/e p. 103-106 & 23"1/e p. 95, 96]*

Temporary carrier

Temporary carriers shed the infectious agent for short period of time.

This category may include

Incubatory carriers :	Measles, mumps, polio, pertussis (whooping cough), influenza, diphtheria, Hepatitis B.
Convalescent carriers :	Typhoid, cholera, diphtheria, Pertussis (whooping cough), dysentery.
Healthy carriers :	Polio, Cholera, meningococcal meningitis, Salmonellosis, diphtheria

Chronic carrier

Chornic carriers excrete the infectious agent for indefinite period.

Examples : Typhoid, hepatitis B, dysentery, malaria, gonorrhoea, cerebrospinal menigitis, Diphtheria.

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836. Infectivity of convalescent carrier of cholera lasts for?

a) 1-5 days

b) 1-2 weeks

c) 2-3 weeks

d) 4-5 weeks

Correct Answer - C

Ans. is 'c' i.e., 2-3 weeks

There are following types of carrier in cholera :

- Incubatory : Shed vibrios only in the brief incubation period of 1-5 days.
- Convalescent : Shed vibrios for 2-3 weeks.
- Healthy or contact carrier : Has had subclinical infection and shed vibrios for less than 10 days.
- Chronic carriers : Can shed vibrios for months or years and may have persistent infection in gall bladder

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837. Diagnosis of filariasis is confirmed most commonly?

a) Clinical features

b) Detection of microfilariae

c) PCR

d) Seralogical test

Correct Answer - B

Ans. is 'b' i.e., Detection of microfilariae ***[Ref Essentials of clinical microbiology - 188]***

Detection of microfilariae (MO

- The most commonly used method for diagnosis of filariasis is detection of microfilariae in blood smear. The blood collection should be done at night because of nocturnal periodicity of microfilariae
- The microfilariae of W. bancrofti and B. malayi occuring in India display a nocturnal periodicity, i.e., they appear in large number at night and retreat from the blood stream during the day. This is a biological adaptation to the nocturnal biting habits of vector mosquitoes. The maximum density of microfilariae in blood is reported between 10 pm and 2 am. When the sleeping habits of the host are altered, a reversal in periodicity has been observed.
- Thick film is most commonly used method for detection of microfilariae.
- Concentration technique by membrane filter concentration (MFC) method is the most sensitive method which can detect low density of microfilariae in blood.

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838. Maximum spread of malaria occurs in which month?

a) March-April

b) January-February

c) April-May

d) September - October

Correct Answer - D

Ans. is 'd' i.e., September - October *[Ref Park 24th/e p. 272-276]*

Malaria is a protozoal disease caused by infection with parasite of genus plasmodium and transmitted to man by certain species of infected female Anopheline mosquito.

Definitive host - Mosquito (sexual life cycle).

Intermediate host Man (Asexual cycle).

Season In India maximum prevalence is from July to November.

Reservoir - With possible exception of chimpanzees in tropical Africa, which may carry the infection with P.malariae, no other animal reservoir is known to exist. Man harbouring sexual forms (gametocytes) is the only reservoir.

Extrinsic incubation period (in mosquito) 10 to 20 days. It is the period of time required for the development of parasite from gametocyte to sporozoite stage (infective stage to man) in the body of mosquito.

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839. Not true about diphtheria vaccine?

a) Can be given as pentavalent vaccine

b) For infant DPT is the vaccine of choice

c) First dose is given at 6 weeks of age

d) all of these

Correct Answer - D
Ans. is 'D All of these, [Ref Park 24thie p. 172]
Diphtheria vaccine is a toxoid.
It is given as trivalent vaccine DPT - Preparation of choice for immunization of infant
First dose is given at 6 weeks of age
Pentavalent vaccine provides protection to a child from 5 life threatening disease-diphtheria, pertussis, tetanus, hepatitis B and haemophilus influenza type b (Hib). Giving pentavalent vaccine reduces the number of pricks to a child. When used, it replaces Hepatitis B and DPT primary vaccination schedule at 6, 10 and 14 weeks in the immunization programme, except that the birth dose of hepatitis B and booster doses of DPT are continued.

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840. Which vaccine is used to prevent death from pneumonia in children?

a) Measles vaccine

b) Rubella vaccine

c) Chickenpox vaccine

d) Influenza viral vaccine

Correct Answer - A

Ans. is 'a' i.e.,Measles vaccine *[Ref Park 24th/e p. 182]*

Three vaccines have potential of reducing death from pneumonia :-

- Measles vaccine
- HIB vaccine (Haemophilus influenzee type B)
- Pneumococcal vaccine

These vaccines work to reduce the incidence of bacterial pneumonia.

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841. Antiboiotic of choice for severe pneumonia in 1 year all child?

a) Cotrimoxazole

b) Ciprofloxacin

c) Benzyl penicillin

d) Tetracycline

Correct Answer - C

Ans. is 'c' i.e., Benzyl penicillin *[Ref Park 24th/e p. 181,182]*

Antibiotics of choice for treatment of acute respiratory infections in children aged 2 months - 5years

.. No pneumonia (Cough or cold) → No antibiotic

2. Pneumonia (not severe) -s cotrimoxazole

3. Severe pneumonia - Benzyl penicillin or ampicillin or chloramphenicol

4. Very severe disease 4 Chloramphenicol

Antibiotics of choice for treatment of acute respiratory infections in infants younger than 2 months

.. No pneumonia (Cough or cold) 4 No antibiotic

2. All pneumonia (severe or not severe) 4 (Benzyl penicillin or ampicillin) plus gentamycin.

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842. Reconstituted measles vaccine should be used with in -

a) 1 hour

b) 3 hour

c) 6 hour

d) 12 hour

Correct Answer - A
Ans. is 'a' i.e., 1 hour
"The reconstituted vaccine should be kept on ice and used within one hour ". —Park Measles vaccine :

- *Type:* Live attenuated, lyophilized (Freeze dried) vaccine,
- Measles vaccine is live attenuated, lypholized (Freez dried) vaccine.
- Strains of virus used to prepare vaccine are Edmonston Zagreb strain (most common), Schwartz strain and Moraten strain.
- It is given subcutaneously in to middle one-third of antero-lateral aspect of thigh.
- It is given at the age of 9 months *(age can be lowerered to 6 months* in epidemics & malnutrition) and is repeated at 16-24 months of age.
- It has protective efficacy (sero-conversion) of 95%. Vaccination provide *life long immunity.*
- *Incubation period of vaccine induced measles is 7 days.*
- In post-exposure prophylaxis, measles vaccine should be given within 2-3 days of exposure. Incubation period of measles virus is 10 days. Incubation period of live attenuated measles virus of live vaccine is 7 days. Thus, if the vaccine is given within 2-3 days of exposure, the replication of vaccine virus takes preference over replication of wild virus.

- *Diluent* used for measles vaccine reconstitution is *distilled water or sterile water.*
- Reconstituted vaccine should be used within 1 hour.
- Usual temperature for cold chain storage is *+2 to +8°C.*

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843. Color of box containing drugs for treatment of category I of TB -

a) Red

b) Blue

c) Yellow

d) Green

Correct Answer - A

Ans. is 'a' i.e.,Red ***[Ref Park 24th/e p. 199]***

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844. Major reservoir of KFD ?

a) Human

b) Squirrels

c) Cattle

d) Monkey

Correct Answer - B

Ans. is 'b' i.e.,Squirrels

KFD, also known as 'monkey disease' is a hemorrhagic fever caused by flavivirus belonging to group-B arbovirus. Disease is common in four districts of Karnataka : Shimoga, North Kannda, South Kanada and Chikamagaloor. KFD was first recognized in 1957 in Shimoga district of Karnataka.

Major vector for transmission of KFD is hard tick (Haemophysalis spinigera and H. turtura). But, soft tick can also transmit the disease, especially outside the India.

Rats and squirrels are the major reservoir. Monkey acts as amplifying host and man is incidental dead-end host, there is no man-to-man transmission.

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845. Threshold level of herd immunity for Pertussis is?

a) 80%

b) 70%

c) 90%

d) 50%

Correct Answer - C
Ans. is 'c' i.e., 90%

Herd immunity

- It is the level of resistance of a community or group of people to a particular disease.
- It occurs when the vaccination of a portion of the population (or herd) provides protection to unprotected (non? vaccinated) individuals.
- Advantage of herd immunity
- It is not necessary to achieve 100% immunization to control a disease by providing herd immunity.
- When a certain percentage of population, is vaccinated, the spread of disease is effectively stopped.
- This critical percentage is referred to as herd immunity threshold.

Disease		**Herd immunity threshod**
Diphtheria	→	85%
Measles	→	83-94%
Mumps	→	75-86%
Pertussis	→	92-94%
Polio	→	80-86%
Rubella	→	80-85%
Small pox	→	83-85%

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846. **What is the commonest form of plague?**

a) Bubonic plague

b) Pneumonic plague

c) Septicaemic plague

d) Hemorrhagic plague

Correct Answer - A

The commonest form of plague is bubonic plague.

Pneumonic plague occurs in less than 5% of patients.

Septicaemic plague occurs rarely except for accidental laboratory infections.

Ref: Park 21st edition, page 270.

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847. Most common source of Diphtheria

a) Case

b) Carrier

c) Both

d) None

Correct Answer - B
Ans. is 'b' i.e., Carrier

- Diphtheria is an acute infectious disease caused by toxigenic strains of corynebacterium diphtheriae.
- Source of infection cases or carriers; carriers are common sources of infection, their ratio is estimated to be 95 carriers for 5 clinical cases.

Infective period → 14 - 28 days from the onset of disease.
Age group → 1 to 5 years
Sex → Both sexes
Incubation period → 2 - 6 days

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848. WHO VISION 2020 initiative includes ?

a) Corneal ulcer

b) Trachoma blindness

c) Diabetic retinopathy

d) Vernal kerato Conjunctivitis

Correct Answer - B

Ans. is 'b' i.e., Trachoma blindness

After the realization that unless blindness control efforts are intensified, the prevalence of blindness will double by 2020 AD, the WHO along with an International Partnership committee launched the Vision 2020 Initiative in 1995.

The diseases identified for global elimination include : *?*

1. Cataract blindness
2. Trachoma blindness and transmission
3. Onchocerciasis
4. Avoidable causes of childhood blindness
5. Refractive errors and low vision

Indian vision of 2020 includes the following seven diseases.

1. Cataract blindness
2. Glaucoma
3. Trachoma blindness and transmission
4. Diabetic retinopathy
5. Childhood blindness
6. Corneal blindness
7. Refractive errors and low vision

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849. Prevalence of RHD in India in 5-15 years age group?

a) 1-2 per 1000

b) 5-7 per 1000

c) 10-12 per 1000

d) 13-15 per 1000

Correct Answer - B

Ans. is 'b' i.e., 5-7 per 1000 ***[Ref Park 24th/e p. 397]***

- In India, RHD is prevalent in the range of 5-7 per thousand in 5-15 years age group and there are about 1 million RHD cases in India.
- RHD constitutes 20-30% of hospital admissions due to CVD in India.
- Streptococcal infections are very common especially in children living in under -privileged conditions, and RF is reported to occur in 1-3 per cent of those infections.

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850. Jai Vigyan Mission mode project in India is for?

a) Measles

b) TB

c) Rheumatic fever

d) STD

Correct Answer - C

Ans. is 'c' i.e., Rheumatic fever *[Ref Park 24^{t}Ve p. 397]*

Jai Vigyan Mission Mode project on Community Control of RF/RHD in India is being carried out with four main components, viz. to study the epidemiology of streptococcal sore throats, establish registries for RF and RHD, vaccine development for streptococcal infection and conducting advanced studies on pathological aspects of RF and RHD.

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851. Which does not have *Live births as* denominator?

a) Infant mortality rate

b) Neonatal mortality rate

c) Child mortality rate

d) Child death rate

Correct Answer - D

Ans. is 'd' i.e., Child death rate *[Ref Park 24thle p. 608-612]*

CDR = No. of deaths of children aged 1-4 years / Total No. of children aged 1-4 years.

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852. Dual record system is useful for estimation of?

a) Literacy

b) Fertility

c) Population density

d) Sex ratio

Correct Answer - B

Ans. is 'b' i.e., Fertility *[Ref Park 24th/e p. 878]*

Sample registration system (SRS), initiated in mid 1960s provides reliable estimates of birth (fertility) and death (mortality) rates at state and national levels.

It is a dual record system,consisting of continuous enumeration of birth and death by an enumerator and an independent survey every 6 months by an investigator supervisor.

Main objective of SRS is to provide reliable estimates of birth rate, death rate and infant mortality rate at the natural division level for rural areas and at state level for urban areas.

Infant mortality rate is the decisive indicator for estimation of sample size at natural division.

Sample design for SRS is uni-stage stratified simple random sample. SRS now covers entire country.

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853. Which of the following is false about intra-uterine devices (IUDs)?

a) Multiload Cu-375 is a third generation intra-uterine device (IUD)

b) Copper devices are effective as post-coital contraceptives

c) LNG-20 (Mirena) has an effective life of 5 years

d) Pregnancy rates of Lippes Loop and T Cu-200 are similar

Correct Answer - A
Multioad Cu-375 is a newer copper intra-uterine device (IUD).
The copper devices comprise the second generation IUDs.
The non-medicated or inert devices are the first generation IUDs and the hormone-releasing devices are the third generation IUDs
Ref: Park's Textbook Of Preventive And Social Medicine, By K. Park, 19th Edition, Pages 393-395.

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854. Perinatal mortality rate include which of the following?

a) Abortions + Still birth early neonatal deaths

b) Still birth + early neonatal deaths

c) Abortions + early neonatal deaths

d) Deaths up to 42 dys after birth

Correct Answer - B
Ans. is b' i.e., Still birth + early neonatal death

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855. Poor man's iron source is?

a) Almond

b) Grapes

c) Soya

d) Jaggery

Correct Answer - D

Ans. is 'd' i.e., Jaggery *[Ref Park 24th/e p. 661 & 23rd/e p. 623]*

There are two major forms of iron :?

1) Haem-iron

- It is better absorbed but is less important source of iron in Indian diet. It is mainly found in foods of animal origin, e.g. liver, meat, poultry and fish.

2) Non-haem iron

- It is poorly absorbed but is the important source of iron in Indian diet. It is mainly found in foods of vegetable origin, e.g. cereales, green leafy vetetables, legumes, nuts, oilseeds, juggery, and dried fruits.
- Among dry fruits, cashew nut has maximum iron (9%) followed by almonds (7%), and pistachos (7%).
- Iron of milk is low in all mammalian species.
- Jaggery is considered as poor man's iron source. It contains a good amount of iron along with vitamin-A.

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856. An 70 kg farmer is consuming 56 grams proteins, 275 grams carbohydrate and 60 grams lipids. He consuming?

a) Less calories

b) More calories

c) Adequate calories

d) Connot be commented

Correct Answer - A

Ans. is 'a' i.e., Less calories *[Ref Read below]*

Protein and carbohydrate both provide 4 cal per gram and fat provides 9 cal per gram.

Thus the farmer is taking (cal or Kcal per day) = (56 x 4) + (275 x 4) + (60 x 9) = 1864

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857. For every 100 kilocalories, vitamin B, required is -

a) 0.05 mg

b) 0.5 mg

c) 5.0 mg

d) 1.0 gn

Correct Answer - A
Ans. is 'a' i.e., 0.05 rug
Thiamine is required 0.5 mg per 1000 K. cal of energy intake, i.e., 0.05 mg per 100 Kcal.

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858. Gomez classification is based on ?

a) Weight retardation

b) Height retardation

c) Mid arm circumference

d) Stunting

Correct Answer - A
Ans. is 'a' i.e., Weight retardation

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859. Kanawati index is used for ?

a) Air population

b) PEM

c) Obesity definition

d) Infectivity

Correct Answer - B
Ans. is 'b' i.e., PEM
Kanawati index is used to classify protein energy malnutrition (PEM).

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860. Human milk with respect to cow milk has -

a) Less fat

b) Less protein

c) Less carbohydrate

d) a and b

Correct Answer - D

Ans. is 'a' i.e., Less fat; `b' Less protein

Human milk has less fat, less protein, more carbohydrates and less calcium, in comparison to cow milk.

Human milk has less sodium, potassium and chloride. However, these substances are in correct amount (though less) in human milk.

Salts (meq/L)	**Cow's milk**	**Human milk**
Sodium	25 (too much)	6.5 (correct amount)
Chloride	29 (too much)	12 (correct amount)
Potassium	35 (too much)	14 (correct amount)

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861. Most common nutritional problem in India?

a) Low birth weight

b) Fluorosis

c) Iran deficiency anemia

d) Vitamin A deficiency

Correct Answer - C

Ans. is 'c' i.e.,Iron deficiency anemia *[Ref Park 24th Ie* p. *677, 661-667]*

The major nutritional problem in India are :

1. Low birth weight
2. Iodine deficiency disorders (IDD)
3. Protein energy malnutrition
4. Endemic fluorosis
5. Vitamin A deficiency
6. Lathyrism
7. Iron deficiency anemia

Iron deficiency anemia is the most widspread among these.

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862. Pulses are deficient in ?

a) Methionirfe

b) Lysine

c) Threonine

d) All

Correct Answer - A

Ans. is 'a' i.e.,Methionine ***[Ref : Park 23'/e*** **p.** ***628 & 21"/e*** **p.** ***578]***

Some amino acids are deficient in a particular food, called limiting amino acids. For example, cereals and wheat are deficient in threonine and lysine, pulses are mainly deficient in methionine and cysteine, and maize is deficient in tryptophan and lysine.

Supplementary action of proteins : If two or more food items eaten together, their proteins supplement the deficient amino acid of each other. For example cereals are deficient in threonine and lysine, whereas pulses are deficient in methionine and cystein. If both are taken together, their proteins complement each other and provide a more balanced and complete protein intake.

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863. Daily iron requirement in healthy Indian male is-

a) 35 mg

b) 17 mg

c) 10 mg

d) 5 mg

Correct Answer - B

Ans. is 'b i.e., 17 mg

Group	Iron absorbed/day(mg)	Recommended intake
Adult male	0.84	17
Adult female (mensturating)	1.65	21
Pregnant woman	2·80 (extra 1.15)	35 (extra 14 mg/day)
Lactating woman (0-6 months)	1.65	21
Infant (6-12 months)	0.7	S
Adolescent boys (13-15 years)	1.6	32
Adolescent girls (13-15 years)	1.36	27

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864. Not a primary air pollutant?

a) SO_2

b) CO,

c) Ozon

d) VOCs

Correct Answer - C

Ans. is 'c' i.e.,Ozone *[Ref Park 24^{t}Ve p. 770]*

Air pollution is the introduction of chemicals particulate matter, or biological material into the atmosphere that cause harm or discomfort to humans or other living organisms, or damages the natural environment. An air pollutant is known as a substance in the air that can cause harm to humans and the-environment.

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865. Number of holes in mosquito net [per sq. inch] ?

a) 50

b) 150

c) 100

d) 200

Correct Answer - B

Ans. is 'b' i.e., 150 [*Ref Park 24th/e p. 810 & 23'/e p. 773]*

The best pattern of mosquito net is the rectangular net.

There should not be a single rent in the net.

The Size of openings in the net is of utmost importance, the size should not exceed 0.0475 inch in any diameter.

The number of holes in one square inch in usually 150.

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866. In malaria control, insecticide used for insectiside treated bed nets (ITBN)-

a) Deltamethrin

b) Malathion

c) Lindone

d) Fenitrothion

Correct Answer - A
Ans. is 'a' i.e., Deltamethrin
Insecticide Treated Bed Nets (ITBN) Programme (esp. deltamethrin) has resulted in significant decline in malaria incidence and API
.. Average decline in anopheline mosquito density - 68%
2. Average decline in cuicine mosquito density - 50%
3. Chemicals used in ITBN Programme : Synthetic pyretheroids
Deltamethrin : 2.5% in dosage of 25 mg/m2
.. Cyfluthrin: 5% in dosage of 50 mg/m2
2. Other insecticides used : Permethrin, Lambdacyhalothrin, Etofenprox, Cypermethrin
- Effectiveness of pyrethroids: For 6-12 months (Retreatment every 6 months)
- Long-lasting insecticidal mosquito nets (LLINs) : Also use pyrethroid insecticides, and a chemical binder that allows the nets to be washed > 20 times, allowing use for > 3 years.

867. Test for coliform count ?

a) Eijkman test

b) Casoni's test

c) Nitrate test

d) Urease test

Correct Answer - A

Ans. is 'a' i.e., Eijkman test

- Adler analysing presumptive coliform count, *E coli count is* cofirmed by other tests like Eijk **m** an **t test** and indole production.

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868. Not a contact poison:

MAHE 14

a) Pyrethrum

b) Paris green

c) Rotenone

d) Eucalyptus oil

Correct Answer - A
Ans.is. A. Pyrethrum

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869. Which of the following is not a indoor air pollutant?

a) Carbon monoxide

b) Nitrous oxide

c) Radon

d) Mercury

Correct Answer - D

Ans. is 'd i.e., Mercury

- Indoor air pollution refers to chemical. biological and physical contamination of indoor air, i.e. *the pollution of air with in and around building and structures.*
- As most of the people work, study, eat, drink and sleep in enclosed environments (i.e. indoor) where air circulation *may* be restricted —> Most people spend large portion of time indoors, as much as 80-90% of their lives. Therefore, more people suffer from indoor air pollution than outdoor pollution.

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Basic Information on Pollutants and Sources of Indoor Air Pollution

- Asbestos
- Biological Pollutants
- Carbon Monoxide (CO)
- Formaldehyde/Pressed Wood Products
- Lead (Pb)
- Nitrogen Dioxide (NO2)
- Pesticides
- Radon (Rn)
- Indoor Particulate Matter
- Secondhand Smoke/ Environmental Tobacco Smoke
- Stoves, Heaters, Fireplaces and Chimneys
- Volatile Organic Compounds (VOCs)

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870. The source of endogenous radiation is

a) Radon

b) Potassium

c) Thorium

d) Uranium

Correct Answer - B
Ans. is 'b' i.e.. Potassium
o Radiation is part of man's environment.

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871. Range of flight of Aedes mosquito is ?

a) 1 km

b) Less than 100 m

c) 400 m

d) 10 kms

Correct Answer - B

Ans. is 'b' i.e., Less than 100 m [Ref Park 23'/e p. 771 & 22"^{d}/e p. 715]

Aedes do not fly over long distances; usually less than 100 metres (110 yards). Anopheles → 3 - 5 Kms

Culex → 11 Kms

Aedes → 100 m

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872. In positively skewed deviation ?

a) Mean = Median = Mode

b) Mean > Medians > Mode

c) Mode > Median > Mean

d) None of the above

Correct Answer - B
Ans. is 'b' i.e., Mean > Medians > Mode

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873. Chi-square test is for?

a) Standard error of Mean

b) Standard error of Proportion

c) Standard error of difference between 2 Means

d) Standard error of difference between Proportions

Correct Answer - D
Ans. is 'd' i.e., Standard error of difference between Proportions

- *Chi-square test measures the significance of difference between two proportions by testing, whether the observed frequencies differ significantly from the expected frequencies.*

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874. Which of the following defines movement across scioeconomic status.

a) Social equality

b) Social upliftment

c) Social mobility

d) Social insurance

Correct Answer - C

Ans. is 'c' i.e., Social Mobility *[Ref Park 23' le p. 688 & 22"d/e p. 639]*

Social mobility is the degree to which an individual's family or group's social status can change throughout the course of their life through a system of social hierarechy, i.e. Social mobility refers to movement of individuals/families across different socioeconomic levels.

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875. All are non-parametric tests except -

a) Chi-square test

b) Sign test

c) Fisher exact test

d) Student t-test

Correct Answer - D
Ans. is 'd' i.e., Student t-test

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876. The number of Anganwadi workers supervised by a Mukhyasevika is:

a) 10

b) 15

c) 25

d) 30

Correct Answer - C
MukhyaSevika is a middle level supervisor. She supervises 20 to 25 Anganwadi workers. She is required to be a graduate in social work or home science or a related field. She is trained for three months.
Ref: Health policies and programmes in India, D.K. Taneja 11th edition page: 312

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877. Which of the following has responsibility of data collection for active malaria surveillance at PHC level ?

a) DHO [District Health Officer]

b) MPW [Multipurpose worker]

c) MO-PHC [Medical Officer-PHC]

d) DMO [District Medical Officer]

Correct Answer - C

Ans. is 'c' i.e., MO-PHC [Medical Officer-PHC]

[Ref Park 24"/e p. 433]

- "The Medical Officer-PHC has the overall responsibility for surveillance and laboratory services, and also supervices the spray***".***

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878. Which of the following conditions must be fulfilled for a PHC to become a first referral unit ?

a) 4-6 beds

b) 15 workers

c) Emergency obsteric care

d) Basic laboratory services

Correct Answer - C
Ans. is 'c' i.e., Emergency obsteric care [Ref Textbook of Indian Health care - 728]
Critical determinants of a first feferral unit

- 24-hour delivery services including normal and assisted deliveries
- Emergency obstetric care including surgical interventions like caesarean sections and other medical interventions, New-born care, Emergency care of sick children, Full range of family planning services including laproscopic services, Safe abortion services, Treatment of STI / RTI, Blood storage facility, Essential laboratory services, Referral (transport) services.

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879. Acculturation is?

a) Traige

b) Cultural changes due to socialisation

c) Attitude

d) Belief

Correct Answer - B

Ans. is 'b' i.e., Cultural changes due to socialisation
Acculturation is a process of social, psychological, and cultural change that stems from the balancing of two cultures while adapting to the prevailing culture of the society. Acculturation is a process in which an individual adopts, acquires and adjusts to a new cultural environment.

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880. The ICDS scheme is sponsored by

a) Ministry of health & family welfare

b) Ministry of Social welfare

c) Ministry of education

d) None

Correct Answer - B
Ans. is 'b' i.e., Ministry of social welfare

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881. True about NPCDCS is all, EXCEPT:

a) Separate centre for stroke, DM

b) Implementation in some 5 states over 10 district

c) CHC has facilities for diagnosis and treatment of CVD, Diabetes

d) Day care facilities are available at subcentre

Correct Answer - C
The **NPCDCS program** has two components viz. (i) **Cancer** & (ii) **Diabetes, CVDs** & stroke.
These two components have been integrated at different levels as far as possible for optimal utilization of the resource.

The activities at State, District, CHC and Sub Centre level have been planned under the programme and will be closely monitored through NCD cell at different levels.

The strategies proposed will be implemented in 20,000 Sub Centres and 700 Community Health Centre in 100 Districts across 21 States during 2010-12

Early diagnosis of diabetes, CVDs, Stroke and Cancer is done at District Hospital, not at CHC.

Ref: NPCDCS Operational Guidelines, DGHS, GOI, Page 6; http:/health.bih.nic.in/Docs/Guidelines-NPCDCS.pdf.

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882. **International Red Cross was founded by:**

a) Henry Dunant

b) John D Rockfeller

c) Marie Curie

d) None of the above

Correct Answer - A

The Red Cross is a non-political international humanitarian organisation founded by Swiss businessman Henry Dunant.

Ref: Park 21st edition page: 858.

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883. Jai Vigyan National Mission is for?

a) Adolescent girls health

b) Mother & child health [MCH]

c) Science & technology

d) Child labour prevention

Correct Answer - C

Ans. is 'c' i.e., Science & technology *[Ref Information p. 1997-98]*

The Union Minister for human resource Development, Dr. Murli Manohar Joshi, has said that scientific Institutions would take up 21 important development projects as part of the Jai Vigyan National Mission with focus on science and technology. These projects would be in areas such as food security, energy conservations, health care, disaster management and bio-diversity. Scientific and R and D institutions would take up one project in 1999. All the projects would be given green channel treatment with procedures relaxed he said while participating at the annual sessions of the 86^{t5} Indian Science Congress in Chennal on Jan.3.

The minister said he had directed the department of Bio-technology to institute 10 awards every year for outstanding young scientists in biosciences. This would encourage high quality research of excellence and relevance. As achieving excellence was dependent in innovative talents which in turn needed identification and nurturing from an early age, a new scheme to select under 18 youngsters of outstanding talent and to provide them with necessary ambience and opportunities for harnessing their talent and been instituted.

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884. Colored kit for STD treatment is which type of approach?

a) Preventive

b) Symptomatic

c) Syndromic

d) Rehabilitative

Correct Answer - C

Ans. is 'c' i.e., Syndromic *[Ref Park 23' /e. p. 332-336]*

In 1988, World Health Organization introduced the concept of *Syndromic management'.*

- In syndromic management, diagnosis and treatment is not based on specific diseases identified by testing but rather on syndromes, which is a group of clinical findings. Treatment is generally given for all or at least most commonly seen diseases or organisms that could cause that syndrome.
- Pre-packed colour coded STI/RTI kits have been provided for free supply to all designated STI/RTI clinics.
- Kit 1 → Grey, for urethral discharge, ano-rectal discharge, cervicitis.
- Kit 2 → Green, for vaginitis
- Kit 3 → White, for genital ulcers
- Kit 4 → Blue, for genital ulcers
- Kit 5 → Red, for genital ulcers
- Kit 6 → Yellow, for lower abdominal pain
- Kit 7 → Black, *for scortal swelling.*

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885. In RNTCP microscopic center is recommended for how much population ?

a) 5000

b) 10000

c) 50000

d) 100000

Correct Answer - D

Ans. is 'd' i.e., 100000

The RNTCP designated 'Microscopy centre' is established for 100000 population in planes (50000 in hilly and moutain areas). For every 5 microscopy centers (500000 population), there is one Senior TB laboratory supervisor (STLS). STLS rechecks all positive slides and 10% of all negative slides. Sputum microscopic examination during case finding is done in designated miroscopy centers.

One tuberculosis unit is established for 500000 population in planes (250000 population in hilly/tribal areas).

There is one state drug store (SDS) for every 50 million population.

886. PERT is which type of management technique?

a) Based on behavioral science

b) Qualitative

c) Quantitative

d) None of the above

Correct Answer - C

Ans. is 'c' i.e.,Quantitative

Management in human organization activity is simply the act of getting people together to accomplish desired goals and objectives. There are two major types of methods of management.

1. Methods based on behavioural sciences.
2. Quantitative methods.

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887. Which of the following is Socratic method of communication?

a) Lectures

b) Group discussion

c) Group discussion

d) Mass media

Correct Answer - B

Ans. is 'b' i.e., Group discussion *[Ref Park 24th Ie p. 892*

Two-way communication (socratic method)

It is method of communication in which both the communicator and the audience take part and the information is transferred in both direction.

Examples→ Group discussion, Panel discussion, symposium, workshop, conferences.

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888. World heart day is celebrated on ?

a) 29th September

b) 28th September

c) 8th September

d) 1st December

Correct Answer - A

Ans. is 'a' i.e., 29th September *[Ref Internet]*

29th September → World heart day

28th September → World rabies day

8th September → World literacy day

Ph December → World AIDS day

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889. Minimum floor space recommended for worker according to Factories Act?

a) 1000 Cu ft

b) 500 Cu ft

c) 200 Cu ft

d) 100 Cu ft

Correct Answer - B

Ans. is 'b' i.e., 500 Cu ft *[Ref Park 24th /e p. 852]*

The first Indian Factories act dates as for back as 1881.

The act was revised and amended several times, the lates being the factories (Amendment) act, 1987.

Following standards are recommended

1. A minimum of 500 Cu ft of space for each worker (not taking into account space more than 14 feet above the group level).
2. For factories installed before the 1948 Act, a minimum of 350 Cu ft of space per worker.
3. A safety officer in every factory where in 1000 or workers are employed
4. A welfare officer in every factory where in 500 or more workers are employed.
5. A canteen where in more than 250 or more workers are employed.
6. Creches where in more than 30 women workers are employed.

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890. Safety officer is recommended where factory has how many workers [In factory Act] ?

a) 250 or more

b) 500 or more

c) 1000 or more

d) 2000 or more

Correct Answer - C

Ans. is 'c' i.e., 1000 or more *[Ref Park 24th/e* p. *852]*

Following standards are recommended :

1. A minimum of 500 Cu ft of space for each worker (not taking into account space more than 14 feet above the group level).
2. For factories installed before the 1948 Act, a minimum of 350 Cu ft of space per worker.
3. A safety officer in every factory where in 1000 or workers are employed
4. A welfare officer in every factory where in 500 or more workers are employed.
5. A canteen where in more than 250 or more workers are employed.
6. Creches where in more than 30 women workers are employed

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891. Category 4 biomedical waste include ?

a) Human anatomical waste

b) Animal waste

c) Cytotoxic drug

d) Waste sharps

Correct Answer - D

Ans. is 'd' i.e., Waste sharps *[Ref Park 23"[1]/e* p. *793-794]*

BMWs in India are managed under 'Biomedical Waste Management and Handling Rules 1998' with exercising powers 6, 8, 25 of Environmental Protection Act 1986 (under Ministry of Environment and Forests).

Schedules are :-

1. Schedule I : Categories of BMW, their treatment and disposal.
2. Schedule II : Color coding and type of container for BMW disposal.
3. Schedule III : Labels for BMW containers/bags.
4. Schedule IV : Labels for transport of BMW containers/bags.
5. Schedule V : Standards for treatment and disposal of BMW.
6. Category No. 7 → Solid (waste generated from disposal items other than the waste sharps such as tubings, catheters, intravenous sets etc.)

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892. One of the following is not true of International Classification of Disease -

a) It is revised once in 10 years

b) It was devised by UNICEF

c) The 10^{th} revision consists of 21 major chapters

d) It is accepted for National and International use

Correct Answer - B
Ans. is 'b' i.e., It was devised by UNICEF
ICD was devised by WHO.

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893. Tensor tympani is attached at ?

a) Malleus

b) Incus

c) Stapes

d) Tympanic membrane

Correct Answer - A
Ans. is 'a' i.e., Malleus [Ref Gray's Anatomy 38th le p. 485]
Tympanic cavity has two muscles :

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894. **The maxillary sinus opens into middle meatus at the level of:**

a) Hiatus semilunaris

b) Bulla ethmoidalis

c) Infundibulum

d) None of the above

Correct Answer - A

The **maxillary sinus** is the largest of the paranasal sinuses and is located in the maxilla, lateral to the nasal cavity and inferior to the orbit.

The maxillary sinus opens into the posterior aspect of the hiatus semilunaris in the middle meatus.

The **infraorbital nerve (CN V-2)** primarily innervates the maxillary sinus.

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895. Vesicles on external ear are seen in

a) Otitis externa

b) Malignant otitis externa

c) Herpes zoster

d) Clear cell carcinoma

Correct Answer - C

Ans. is 'c' i.e., Herpes zoster [Ref Head and Neck Surgical Pathology p. 53]

Ramsay Hunt syndrome

It is lower motor neuron type of facial palsy due to Varicella (herpes) zoster. Pain is often a prominent feature and vesicles are seen in the ipsilateral ear, on the hard palate and/or on anterior two third of tongue. It may involve other cranial nerves-V, VIII, IX and X and cervical branches (C_2, C_3 & C_4) that have anastomotic communications with facial nerve. This results in features like :

- Anaesthesia of face
- Giddiness
- Hearing impairment along with VII nerve palsy.

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896. First line treatment for mild retraction pocket in the ear is

a) Observation

b) Antibiotics

c) Tympanostomy tube

d) Surgical excision

Correct Answer - B

Ans. is 'b' i.e., Antibiotics [Ref Conquering Otitis media by Charles Bluestone p. 95]

Retraction pocket

- It must be treated by an otolaryngologist.

1) Antibiotics

- A mild retraction pocket that is present in a fluid - filled middle ear can first be treated with antibiotics.

2) Tympanostomy

- If antibiotics does not work, a tympanostomy tube is usually inserted, and in most cases, the eardrum will return to normal.
- If the retraction pocket is very deep, a tube should be inserted, bypassing the antibiotic treatment.

3) Surgical excision

- If the retraction pocket still does not go away, the deformed eardrum should be operated on to prevent a cholesteatoma from developing.
- Once a cholesteatoma develops, surgery is the only way to remove it.

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897. Cauliflower ear seen in:

a) Hematoma of the auricle

b) Carcinoma of the auricle

c) Fungal infection of the auricle

d) Congenital deformity

Correct Answer - A
Cauliflower ear (boxer's ear, wrestler's ear) is an acquired deformity of the outer ear.
In this injury, the ear can shrivel up and fold in on itself and appear pale, giving it a cauliflower-like appearance, hence the term cauliflower ear.
Wrestlers, boxers and martial artists in particular are susceptible to this type of injury. When the ear is struck and a blood clot develops under the skin, or the skin is sheared from the cartilage, the connection of the skin to the cartilage is disrupted.

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898. In electrocochleography:

a) It measures middle ear latency

b) Outer hair cells are mainly responsible for cochlear microphonics and summation potential

c) Summation potential is a compound of synchronus auditory nerve potential

d) Total AP represents endocochlear receptor potential to an external auditory stimulus

Correct Answer - B

Ans. is. B. Outer hair cells are mainly responsible for cochlear microphonics and summation potential

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899. Which fracture of the petrous bone will cause facial nerve palsy:

a) Longitudinal fractures

b) Transverse fractures

c) Mastoid

d) Facial nerve injury is always complete

Correct Answer - B
Ans. is. B. Transverse fractures

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900. Ossicle M/C involved in CSOM:

a) Stapes

b) Long process of incus

c) Head of malleus

d) Handle of malleus

Correct Answer - B
Ans. is. B. Long process of incus

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901. Mac Ewan's triangle is the landmark for:

a) Maxillary sinus

b) Mastoid antrum

c) Frontal sinus

d) None

Correct Answer - B
Ans. is. B. Mastoid antrum

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902. Cristae are seen in?

a) Utricle

b) Saccule

c) Semicircular canal

d) Otolith membrane

Correct Answer - C

Ans. is 'c' i.e., Semicircular canal *[Ref Dhingra Sth/e* p. *16]*

Vestibular apparatus

- The vestibular apparatus *within the inner ear* detects head motion and position and transduces this information to a neural signal.

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903. Function of saccule is?

a) Linear acceleration

b) Angular acceleration

c) Senses position of head

d) Rotational movement

Correct Answer - A:C
Ans. is *'a' i.e.*,Linear acceleration & 'c' i.e.,Senses position of head

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904. Earliest age for doing BERA is?

a) In utero - before birth

b) At birth

c) 3 months

d) 6 months

Correct Answer - B

Ans. is 'b' i.e., At birth [Ref Logan Turner 10thle p. 254; PL Dhingra 4th/e p. 28]

"Worldwide screening is largely performed in newborn nursery with the first screening test performed from birth until 10 days of age"

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905. Most common malignancy of middle ear is

a) Glomus tumor

b) Squamous cell carcinoma

c) Adenocarcinoma

d) Sarcoma

Correct Answer - B

Ans. is 'b' i.e.,Squamous cell carcinoma *[Ref Textbook of ENT by Rakesh Shrivastav 2"/e p. 67]*

- Squamous cell carcinoma is the most common malignant tumor of the middle ear.
- Other forms of malignancy like adenocarcinoma and sarcoma are rare.

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906. Most common benign tumor of ear canal is

a) Osteomas

b) Sebaceous adenoma

c) Papilloma

d) Ceruminoma

Correct Answer - A

Ans. is 'a' i.e., Osteomas [Ref Dhingra 6th le p. 107; Bansal ENT p. 160; Encyclopedia of Imaging, Baert p. 1318]

Osteomas/ exostoses → most common benign tumors of the external auditory canal.

Squamous cell carcinomas → Most common malignant tumors of the external auditory canal.

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907. Diplacusis is

a) Hearing sound with diminished intensity

b) Hearing sounds of two different tones

c) Hearing extremely loud sound

d) Perceiving light on production of sound

Correct Answer - B

Ans. is 'b' i.e.,Hearing sounds of two different tones *[Ref Tuli Ist/e p. 114]*

- Monaural diplacusis :- In monaural diplacusis, a listener hears two tones when a single tone is presented to a single ear, i.e. one ear hears two different tones when presented one.
- Binaural diplacusis :- In binaural diplacusis, a listener hears two different tones in right & left ear when a single tone is presented to both ears.
- Both monoaural and binaural diplacusis are caused by inhomogenities in the cochlea that also give rise to spontaneous otoacoustic emissions.

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908. Which semicircular canal is most commonly involved in BPPV?

a) Horizontal

b) Posterior

c) Superior

d) All of the above

Correct Answer - B

Ans. is 'b' i.e., Posterior *[Ref Dhingra Sth/e p. 51]*

- BPPV is thought to be caused by displacement of otoconia (mineral crystals) from the vestibule of inner ear into the semicircular canals. The posterior semicircular canal is most commonly involved, though superior and horizontal canals canal can also be affected.
- Otoconia or ear rocks are small crystals of calcium carbonate derived structure in the utricle which migrate into semicircular canals and cause BPPV. While saccules also contains otoconia, they are not able to migrate into the semicircular canals.

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909. Most common ossicle affected due to trauma -

a) Malleus

b) Incus

c) Stapes

d) All affected similarly

Correct Answer - B

Ans. is 'b' i.e, Incus *[Ref Hearing : Practical Guide by Tysome p. 96]*

"Significant head injury or direct trauma to the middle ear can result in subluxation of one or more of the ossicles, the incus being the most commonly affected

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910. Threshold of hearing in a young normal adult is ?

a) 0 dB

b) 10 dB

c) 20 dB

d) 30 dB

Correct Answer - A
Ans. is'a'i.e.,0 dB
[Rd Dhingra 4n/e p. 21]
Audiometric zero

- **Threshold of hearing, i.e. The faintest intensity which a normal healthy person can hear will vary from person to person.**
- The International Standards Organisation (ISO) adopted a standard for this, which is represented as the zero level on the audiometer (0 dB).
- According to ISO, audiometric zero is the mean value of minimal audible intensity in a group of normally hearing healthy young adults.

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911. Gradenigo's syndrome involves all of the following cranial nerves, EXCEPT:

a) IV

b) V

c) VI

d) VII

Correct Answer - A

Ans. A. IV

Gradenigo's syndrome is characterized by facial pain, particularly in the first division of the trigeminal nerve and diplopia due to sixth cranial nerve palsy. It is associated with disease at the apex of the petrous temporal bone where the abducens nerve is closely related to the trigeminal nerve. Facial nerve palsy and deafness (VIII nerve palsy) is also considered to be a part of this syndrome.

Causes includes:

- Inflammation (petrositis, possibly spreading from a local infection such as otitis or mastoiditis)
- Tumors (cholesteatoma, chordoma, meningioma, nasopharyngeal carcinoma, metastatic disease)
- Skull base fracture

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912. Singapore ear is

a) Hypertrophy of sweat glands

b) Hypertrophy of sebaceous glands

c) Otitis externa

d) Excoriation of external ear skin

Correct Answer - C

Ans. is 'c' i.e, Otitis externa [Ref Clinical ENT 5th/e p. 223]

Excessive moisture is an important predisposing factor for otitis externa as excessive moisture elevates the pH and removes protective cerumen. Therefore, humidity and hot climate predispose to otitis externa. Hence otitis externa is also known as :-

1. Singapore ear (where climate is hot and humid)
2. Swimmer's ear
3. Telephonist's ear (telephonists who require inserts in their ear have excessive moisture due to sweating).

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913. All of the following are true about malignant otitis externa except:

a) ESR is used for follow up after treatment

b) Granulation tissues are seen on superior wall of the external auditory canal

c) Severe hearing loss is the chief presenting complaint

d) Pseudomonas is the most common cause

Correct Answer - C
Ans. c. Severe hearing loss is the chief presenting complaint
Severe hearing loss is not the chief presenting complaint malignant otitis externa.
Malignant Otitis Externa:
Characterized by granulation tissue in external auditory canal at the junction of bone and cartilage.
MC organismz Pseudomonas aeruginosa
ESR is raised, used for follow up of treatment

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914. A diabetic patient presents with foul smelling ear discharge, fever and severe pain in the ear. On examination there is thick yellow coloured discharge from the ear and granulation tissue in the canal. Which of the following is the appropriate management for this patient?

a) Surgical debridement

b) Antibiotic therapy

c) Cryotherapy

d) Laser removal of granulation tissue

Correct Answer - B

Ans. is 'b' i.e., Antibiotic therapy *[Ref Dhingra 6th/e p. 52]*

- The patient described in the question most likely has malignant otitis externa.
- So the treatment of choice is anti - pseudomonal antibiotics.
- Extensive surgical debridement once an important part of the treatment is now rarely needed

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915. Topodiagnosis of facial nerve has all the tests except

a) Schirmer test

b) Bing test

c) Taste test

d) Salivary flow test

Correct Answer - B

Ans. is 'b' i.e., Bing test [Ref Dhingra 6th/e p. 98]

The following tests are useful in finding the site of lesion in paralysis of lower motor neuron.

1. Schirmer test : It compares lacrimation of the two sides. A strip of filter paper is hooked in the lower fornix of each eye and the amount of wetting of strip measured. Decreased lacrimation indicates lesion proximal to the geniculate gan- glion as the secretomotor fibres to lacrimal gland leave at the geniculate ganglion via greater superficial petrosal nerve.
2. Stapedial reflex : Stapedial reflex is lost in lesions above the nerve to stapedius. It is tested by tympanometry.
3. Taste test : It can be measured by a drop of salt or sugar solution placed on one side of the protruded tongue, or by electrogustometry. Impairment of taste indicates lesion above the chorda tympani.
4. Submandibular salivary flow test : It also measures func- tion of chorda tympani. Polythene tubes are passed into both Wharton ducts and drops of saliva counted during one minute period. Decreased salivation shows injury above the chorda.

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916. Which of the following is the function of tensor tympani muscle?

a) Dampen very loud sound

b) Tenses tympanic membrane

c) Tenses pharyngotympanic tube

d) Prevent noise trauma to the inner ear

Correct Answer - B

Ans. is 'b' i.e., Tenses tympanic membrane [Ref Dhingra 6"/e p. 8]

Normal opening of the eustachian tube equalizes atmospheric pressure in the middle ear; closing of the Eustachian tube protects the middle ear from unwanted pressure fluctuations and loud sounds.

The muscles of the eustachian tube system help to open and close the tube, thus allowing it to perform its function.

The muscles are :?

1. Tensor veli palatini (tensor palatini) :- Contraction of this muscle during swallowing, yawning and sneezing opens the tube. Defective function of this muscle in cleft palate results in eustachian tube dysfunction.
2. Tensor tympani :- Tensonises the tympanic membrane.
3. Levator veli palatini :- Sometimes, it also helps to open the tube, however it is usually considered as a velopharyngeal valve muscle only.
4. Salpingopharyngeus :- Its functional significance is questionable.

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917. True about serous otitis media are all except ?

a) Also called glue ear

b) Affect school going children

c) Type C tympanogram

d) Fluid in middle ear

Correct Answer - C
Ans. is `c' i.e., Type C tympanogram
Serous otitis media

- Serous otitis media (SOM) has many synonyms : Serous otitis media, otitis media with effusion, glue ear, non-suppurative otitis media, mucoid otitis media, silent otitis media. SOM is an insidious condition in which there is thick or sticky non-purulent fluid behind the eardrum in the middle ear, but there is no ear infection, i.e., effusion of middle ear without infection. Fluid in the middle ear is sterile. SOM occurs most commonly in school going children and SOM is the commonest cause of childhood hearing loss.
- Etiopathogenesis

1. Eustachian tube dysfunction

- Eustachian tube dysfunction, coupled with recurrent upper respiratory tract infection is the most important factor in the development of SOM. Normally eustachian tube helps to drain fluids to prevent them from building up in the ear. In Eustachian tube dysfunction, it is unable to drain the fluid. Following can cause Eustachian tube block :-

1. Respiratory tract infection :- Adenoid, rhinitis, tonsillitis, sinusitis.
2. Allergies
3. Benign and malignant tumor of nasopharynx.

2. Unresolved otitis media

- Inadequate antibiotic therapy in acute suppurative otitis media may inactivate infection but fails to resolve it completely. Low grade infection lingers on and acts as stimulus for mucosa to secrete more fluid.
- Clinical features
- Unlike children with an ear infection (ASOM), children with SOM do not act sick. o The only presenting symptom may be hearing loss with fullness in ear.
- Otoscopic finding of SOM
- Air bubbles on the surface of ear drum
- Fluid behind the eardrum.
- Dullness of the eardrum when a light is used, with loss of light reflex. o Eardrum may appear yellow, grey or bluish in colour.
- Retracted eardrum with decreased mobility
- Tympanometry shows type B tympanogram.

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918. Pink reflex through intact tympanic membrane in active otosclerosis is known as

a) Schwabach's sign

b) Schwartz sign

c) Lyre's sign

d) Chvostek's sign

Correct Answer - B

Ans. is 'b' i.e., Schwartz sign *[Ref Dhingra 5th/e p. 98; Current otolaryngology 2nd/e p. 674]*

- **A reddish hue / Flammingo pink may be seen on the promontory and oval window niche owing to the prominent vascularity associated with an otospongiotic focus. This is k/a Schwartz sign.**
- **Schwartz sign is a pink reflex, seen through intact tympanic membrane, in the area of oval window. It indicates active otosclerosis** usually during pregnancy.
- Lyre's sign is splaying apart of internal and external carotid arteries on angiogram in cases of carotid body tumour of the neck.
- Chvostek's sign seen in hypocalcaemia as after total thyroidectomy where parathyroids have also been removed. Tapping over the distribution of facial nerve produces a twitch.

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919. SADE classification classifies

a) Retraction of tympanic membrane

b) Extension of Glomus tumor

c) Mortality after heart disease during pregnancy

d) Extent of CSF rhinorrhea

Correct Answer - A

Ans. is 'a' i.e., Retraction of tympanic membrane *[Ref Basic Clinical Radiobiology 5th/e p. 942]*

Sade's classification of retraction of the pars tensa of the tympanic membrane defined two types of retraction and classified each on an ordinal scale :?

1. Atelectasis, defined as diffuse 'retraction of the tympanic membrane towards the promontorium'.
2. Retraction pocket, defined as focal 'retraction of the pars tensa towards or into the attic'

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920. A 10 year old child presents with non foul purulent smelling discharge, which is painless. Patient reports that he is able to hear better in the presence of discharge than when the ear is dry. The most probable diagnosis is

a) CSOM

b) Serous otitis media

c) Cholesteatoma

d) Mastoiditis

Correct Answer - A

Ans. is 'a' i.e., CSOM *[Ref Dhingra 6th /e* p. *68]*

- Clinical features of CSOM
- Profuse mucopurulant discharge which is not foul smelling, i.e., non foul smelling discharge .
- Hearing loss (conductive type). If sensorineural component also occurs (i.e., mixed type), it arouses the suspician of toxic deafness.
- Sometimes, patient reports a paradoxical effect, i.e., hears better in the presence of discharge than when the ear is dry. This is due to round window shielding effect produced by discharge which helps to maintain phase differential.
- There is no pain, if it occurs it is due to associated otitis externa not due to otitis media.
- Since the infected area is open at both ends, discharge does not accumulate in the middle ear cavity.
- Ossicular chain is mostly uninvolved, if involved only long process of

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incus is involved.

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921. Treatment of central safe perforation of tympanic membrane includes all except

a) Aural toilet

b) Ear drops

c) Avulsion of aural polyp

d) Myringoplasty

Correct Answer - C

Ans. is 'c' i.e., Avulsion of aural polyp ***[Ref Dhingra 6th Ie p. 72]***

- An aural polyp should never be avulsed as it may be arising from the stapes, facial nerve or horizontal canal and thus lead to facial paralysis or labyrinthitis.

Treatment

The aim is to control infection and eliminate ear discharge and at a later stage to correct the hearing loss by surgical means.

1. Aural toilet : Remove all discharge and debris from the ear. It can be done by dry mopping with absorbent cotton buds, suction clearance under microscope or irrigation (not forceful syringing) with sterile normal saline. Ear must be dried after irrigation.
2. Ear drops : Antibiotic ear drops containing neomycin, polymyxin, chloromycetin or gentamicin are used. They are combined with steroids, which have local antiinflammatory effect.
3. Systemic antibiotics : They are useful in acute exacerbation of chronically infected ear, otherwise role of systemic antibiotics in the treatment of CSOM is limited.
4. Precautions : Patients are instructed to keep water out of the ear during bathing, swimming and hair wash. Rubber inserts can be used. Hard nose blowing can also push the infection from nasopharynx to middle ear and should be avoided.

5. Treatment of contributory causes : Attention should be paid to treat concomitantly infected tonsils, adenoids, maxillary antrum and nasal allergy.
6. Surgical treatment : Aural polyp or granulations, if present, should be removed before local treatment with antibiotics. It will facilitate ear toilet and permit ear drops to be used effectively.
7. Reconstructive surgery: Once ear is dry, myringoplasty with or without ossicular reconstruction can be done to restore hearing. Closure of perforation will also check repeated infection from the external canal.

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922. Korner's septum is seen in ?

a) Petrosquamous suture

b) Temporosquamous suture

c) Petromastoid suture

d) Frontozygomatic suture

Correct Answer - A
Mastoid develops from squamous and petrous bone.
Korner's septum is persistence of petrosquamous suture in the form of a bony plate.
Korner's septum is surgically important as it may cause difficulty in locating the antrum and the deeper (ells, and thus lead to incomplete removal of disease at mastoidectomy. Mastoid antrum cannot be reached unless the
Korners septum has been removed.

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923. Agger nasi is

a) Mucosal flap covering the nasolacrimal duct

b) Opening of the sinuses

c) Depression in front of middle turbinate

d) Elevation anterior to middle turbinate

Correct Answer - D

Ans. is 'd' i.e., Elevation anterior to middle turbinate *[Ref Dhingra 5thie p. 150; Tuli 1"/e* p. *135]*

Atrium is a shallow depression in front of the middle turbinate. Agger nasi is an elevation just anterior to the attachement of middle turbinate.

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924. Quadrungular septum is seen in which of the following?

a) Larynx

b) Nose

c) Cranium

d) Palate

Correct Answer - B

Ans. is 'b' i.e., Nose *[Ref Dhingra 5th/e p. 150]*

"Cartilage of the septum, also known as the quandragular cartilage because it is roughly quadrilateral in shape - separates the nostrils".

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925. Nasal vestibule is

a) Lateral part of nasal cavity

b) Antero - inferior part of nasal cavity

c) Supero - medial part of nose

d) Posterior aperture of nose

Correct Answer - B

Ans. is 'b' i.e., Antero - inferior part of nasal cavity*[Ref Otolaryngology Basic Science & Clinical Review by Van De Water p. 462]*

Internal nose has following parts :

- Nasal cavity proper:- Internal nose is divided into right and left nasal cavities by nasal septum. Each nasal cavity communicates with the exterior through naris or nostrils and with nasopharynx through posterior nasal aperture or posterior nares or choana.
- Vestibule of nose :- Anterior and inferior part of the nasal cavity is lined by skin and is called vestibule of nose. It contains sebaceous glands, hair follicles and the hair called vibrissae.

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926. Which of the following terms is used to describe the most prominent point of nasal tip?

a) Pronasale

b) Alare

c) Nasion

d) Columella apex

Correct Answer - A

Ans. is 'a' i.e., Pronasale [Ref Handbook of anthropometry: Physical measures of human form in health and diseases, by Victor R. Preedy, p. 922]

- Pronasale : Most prominent point on the nasal tip.
- Alare : The point where the nasal blade (Ala nasi) extends the farthest out.
- Columella apex : The most anterior or the highest point on the columella crest at the apex of the nostril.
- Nasion : The point in the midline of both the anatomic nose and the nasoanterioral suture

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927. Epistaxis after ligating external carotid artery is due to which vessel?

a) Anterior ethmoidal artery

b) Superior labial artery

c) Sphenopalatine artery

d) Greater palatine artery

Correct Answer - A

Ans. is 'a' i.e., Anterior ethmoidal artery *[Ref Dhingra 5thie p. 190]*

- Since external carotid artery is ligated, the bleeding comes from branches of the internal carotid artery.
- Anterior ethmoidal artery, a branch of ophthalmic artery, which is a branch of internal carotid artery, is a constituent of the blood supply of the Little's area of the nasal septum.

Blood supply of nasal septum

i) Internal carotid system

- Anterior ethmoidal artery
- Branches of ophthalmic artery
- Posterior ethmoidal artery

ii) External Carotid System

- Sphenopalatine artery (branch of maxillary artery) gives nasopalatine and posterior medial nasal branches.
- Septal branch of greater palatine artery (Br. of maxillary artery).
- Septal branch of superior labial artery (Br. of facial artery)

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928. Killian's polyp is a/an

a) Antrochoanal polyp

b) Ethmoidal polyp

c) Frontal polyp

d) Maxillary polyp

Correct Answer - A

Ans. is 'a' i.e., Antrochoanal polyp ***[Ref Dhingra 5th/e p. 186; Essential otolaryngology 2"1/e p.*** **660]**

Nasal polyps are of two types :?

- Antrochoanal :- This is usually solitary and arises from maxillary sinus and grows backward in the nose towards the choana (in contrast to ethmoidal polyps which tend to grow forward). The Antrochoanal polyp was first described by Gustain killians, therefore the name given to it was killian's polyp.
- Ethmoidal :- These are multiple, bilateral and arise from etmoidal sinuses and tend to protrude forwards.

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929. Which of the following is the predisposing factor for ethmoidal carcinoma

a) Smoking

b) Alcohol

c) Chronic infection

d) All of the above

Correct Answer - A

Ans. is 'a' i.e., Smoking *[Ref Diseases of ENT by Bansal p.* 363]

Risk factors for squamous cell carcinoma of the paranasal sinuses :-

- Smoking , Mustard gas, Nickel and chromium plating industry, Isopropyl oil
- Leather industry , Wood dust exposure (adenocarcinoma of ethmoid), Polycyclic volatile hydrocarbons

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930. Most common sinus predisposed to malignancy which of the following?

a) Ethmoid

b) Maxillary

c) Frontal

d) Sphenoid

Correct Answer - B

Ans. is 'b' i.e., Maxillary *[Ref Dhingra 5thie p. 219]*

- The majority of paranasal sinus malignancies (50-80%) originate within the maxillary sinus antrum.
- Sinuses and various conditions in which sinuses are affected in descending order of frequency

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931. Most common benign tumor of paranasal sinuses?

a) Papilloma

b) Osteoma

c) Warts

d) Fibroma

Correct Answer - B

Ans. is 'b' i.e., Osteoma *[Ref Logan Turner 8th/e p. 89]*

- Osteoma of the frontal sinus - Most common benign tumour arising in the nasal sinuses.
- The osteoma arises from the floor of the frontal sinus near the midline.

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932. Rhinolith can cause

a) Nasal obstruction

b) Epistaxis

c) Epiphora

d) All of the above

Correct Answer - D

- A rhinolith is a calculus present in the nasal cavity.
- The word is derived from the roots rhino- and -lith, literally meaning "nose stone".
- A rhinolith usually forms around the nucleus of a small exogenous foreign body, blood clot or secretion by slow deposition of calcium and magnesium salts.
- Over a period of time, they grow into large irregular masses that fill the nasal cavity.
- **They may cause pressure necrosis of the nasal septum or lateral wall of nose leading to nasal obstruction, epistaxis, headache, sinusitis and epiphora.**

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933. What is a Rhinolith:

a) Foreign body in nose

b) Stone in nose

c) Deposition of calcium around foreign body in nose

d) Misnomer

Correct Answer - C
Rhinoliths are calcareous masses which result due to deposition of salts-like calcium and magnesium carbonates and phosphates around the nucleus of a foreign body.

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934. Treatment of nasal bone fracture includes all except

a) Hematoma drainage

b) Topical vasoconstrictor

c) Closed reduction

d) Immediate rhinoplasty

Correct Answer - D

Ans. is 'd' i.e., Immediate rhinoplasty *[Ref Scott* Brown *7th/e p. 1612]*

Treatment of nasal injuries

- After ensuring patency of airway, adequate ventilation and overall stability of patient, attention to the nasal injuries should be given.
- Standard therapy is to perform closed reduction or open reducation between 3 and 7 days, and upto 2 weeks. This is because :
- Most of the patients (-70-80%) do not require any active treatment, as many do not have a nasal fracture and those that do, the fracture is not displaced. Soft tissue swelling can produce the misleading appearance of a deformity which disapears as the swelling subsides. Such patients require only reassurance & topical vasoconstrictors to alleviate congestion and obstructive symptoms. A re-examination should be carried out after 5 days, if there is uncertainity about the need for reduction.
- A large number of patients will have a preexisting nasal deformity caused by a previous incident. Patients that fall in this category are advised to consider a formal rhinoplasty when everything has settled down some months later.
- Immediate surgical intervention in acute phase is indicated : ?
- Severe deformity:- Septal hematoma causing nasal obstruction

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935. All of the following are true about parapharyngeal abscess except?

a) Mastoid process divides the space into anterior and posterior

b) Also known as pharyngomaxillary space infection

c) Tonsil is pushed medially

d) Occurs after tooth extraction

Correct Answer - A

Ans. is 'a' i.e., Mastoid process divides the space into anterior and posterior *[Ref Dhingra V/e p. 281]*

Styloid process and the muscles attached to it divide the parapharyngeal space into anterior and posterior compartments, not mastoid process.

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936. Trismus in parapharyngeal abscess is due to spasm of:

a) Masseter muscle

b) Medial pterygoid

c) Lateral pterygoid

d) Temporalis

Correct Answer - B
Styloid process divides the pharynx into anterior and posterior compartment.
Trismus occurs in infection of anterior compartment whereas torticollis (due to spasm of paravertebral muscles) occurs in the infection of posterior compartment.

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937. Regarding adenoids true is/are:

a) There is failure to thrive

b) Mouth breathing is seen

c) CT scan should be done to assess size

d) a and b

Correct Answer - D
High arched palate and mouth breathing are features of hypertrophied adenoids which leads to adenoid facies
In adenoids as a consequence of recurrent nasal obstruction and URTI, child develops failure to thrive
Size of adenoids may well be assessed using lateral radiograph of nasopharynx, and CT scan is not necessary
Adenoids, also known as nasopharyngeal tonsils, are subepithelial collection of lymphoid tissue at the junction of roof and posterior wall of nasopharynx.

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938. Lining epithelium of vocal cord is

a) Stratified squamous epithelium

b) Non stratified squamous epithelium

c) Ciliated columnar epithelium

d) Non ciliated columnar epithelium

Correct Answer - A

Ans. is 'a' i.e., Stratified squamous epithelium [Ref Dhingra Vie p. 300]

Vocal cords along with the upper part of the vestibule is the only part of laryngeal mucous membrane which is lined by epithelium of stratified squamous type. Elsewhere in the larynx epithelium of the mucous membrane is ciliated columnar type.

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939. Select correct statements about Ca larynx:

a) Glottic Ca is the most common

b) Supraglottic ca has best prognosis

c) Lymphatic spread is the most common in subglottic Ca

d) All

Correct Answer - A
Ans. is. A. Glottic Ca is the most common

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940. Which of the following sites of Ca larynx has the best prognosis?

a) Glottic

b) Supraglottis

c) Subgottis

d) All have poor prognosis

Correct Answer - A

Ans. is 'a' i.e.,Glottic *[Ref Dhingra 5th/e p. 326]*

Laryngeal carcinoma:-

Cancer	Prognosis
Glottis	Good
Supraglottis	Poor
Subglottis	Worst

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941. Laser used in tracheal neoplasm is

a) Argon

b) KTP - 532

c) CO_2

d) Nd - YAG

Correct Answer - C

Ans. is 'c' i.e., CO_2 [Ref Dhingra 5th/e p. 315]

- Four types of laser are generally used in ENT surgery :
- Argon
- KTP - 532 (Potassium titanyl phosphate);
- Nd : YAG (Neodyminum - yttrium aluminium garnet);
- CO2
- The carbon dioxide (CO) laser is the most common laser used for tracheal neoplasm.

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942. Most common site of distant metastasis from Ca larynx

a) Lymph nodes

b) Lung

c) Brain

d) Bone

Correct Answer - B

Ans. is 'b' i.e., Lung [Ref Clinical Otorhinolaryngology yd /el). 931]

Distant metastasis is seen much less frequently. The most commonly affected sites for distant metastases are lungs (66%); bone (22%), liver (10%), mediastinum and bone marrow.

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943. All the following are true about Laryngeal carcinoma except:

a) More common in females

b) Common in patients over 40 years of age

c) After laryngectomy, esophageal voice can be used

d) b and c

Correct Answer - A

Cancer Larynx

- Most common histological type of laryngeal Ca - Squamous cell carcinoma (seen in 90% cases)
- It is more common in males.
- Male: Female ratio is 4: 1
- Most common age = 60-70 years.

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944. A patient presents with Ca larynx involving left false cord, left arytenoid and left aryepiglottic fold with bilateral mobile true cords. The treatment of choice in this patient is which of the following?

a) Vertical hemilarygectomy

b) Horizontal partial hemilaryngectomy

c) Total laryngectomy

d) Radiotherapy followed by chemotherapy

Correct Answer - B

Ans. is 'b' i.e., Horizontal partial hemilaryngectomy *[Ref Dhingra 4th/e* p. *284]*

Involvement of unilateral false cord, aryepiglottic folds and arytenoids with mobile cord suggests supraglottic cancer in T2 stage (more than one subsites of supraglottis are involved).

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945. In recurrent laryngeal nerve palsy which muscle keeps vocal cord in median position?

a) Posterior cricoarytenoid

b) Cricothyroid

c) Vocalis

d) All of the above

Correct Answer - B

Ans. is 'b' i.e., Cricothyroid [Ref Dhingra 5th/e p. 300]

Recurrent laryngeal nerve paralysis

Recurrent laryngeal nerve supplies : ?

1. All intrinsic muscles of the larynx except cricothyroid.
2. Sensory supply to larynx below vocal cords.

So, paralysis of recurrent laryngeal nerve causes : ?

1. Paralysis of all intrinsic muscles including all adductors (except for cricothyroid) and all abductors.
2. Anaesthesia below the level of vocal cord.

- Though, there is paralysis of both adductors (except cricothyroid) and abductors, the manifestations are mainly due to paralysis of abductors.

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946.

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Esophagus is constricted at 4 anatomic locations. Narrowest part of esophagus lies at which of the following constriction?

a) At the level of cricopharyngeal sphincter

b) At the crossing of aortic arch

c) At the crossing of left bronchus

d) At the level of opening in the diaphragm

Correct Answer - A

Narrowest part of esophagus is at its commencement at the cricopharyngeal sphincter which is 15cm from the incisor teeth.

Other sites of esophagus where it is slightly constricted includes:

- Crossing by the aortic arch which is 22cm from the teeth.
- Crossing by the left principal bronchus which is 27cm from the teeth
- At the opening in the diaphragm which is 38cm from the teeth

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947.

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Food particles mostly get obstructed in which part of esophagus -

a) Cricopharyngeal sphincter

b) Crossing of arch of aorta

c) Cardiac end

d) None of the above

Correct Answer - A

Ans. is 'a' i.e, Cricopharyngeal sphincter [Ref: Dhingra 6thie p. 349]

By far the commonest site is at or just below the cricopharyngeal sphincter. Flat objects like coins are held up at the sphincter while others are held in the upper oesophagus just below the sphincter due to poor peristalsis.

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948. True regarding traction diverticuli of esophagus is all except

a) Does not empty completely

b) Triangular appearance

c) Contains all layers

d) Maintains elastic recoil

Correct Answer - A

Ans. is 'a' i.e., Does not empty completely ***[Ref The Esophagus by Richter p. 143]***

	Traction Diverticula	**Pulsion Diverticula**
Type	True diverticula	False diverticula
Layers	Lined by all layers	Ususally only mucosal outpouchings
Location	Mid esophagus	Distal esophagus
Associated	Scarring from TB or histoplasmosis involving perihilar or subcarinal lymph nodes	Associated with dysmotility
Shape	Triangular or tented	Rounded outpouchings
Emptying	Tends to empty contents	Do not empty completely
		Epiphrenic diverticula, Zenker's diverticula

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949. Simple mastoidectomy is done in:

a) Acute mastoiditis

b) Cholesteatoma

c) Coalescent mastoiditis

d) Localized chronic otitis media

Correct Answer - C
Ans. is. C. Coalescent mastoiditis

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950. Radical mastoidectomy is done for:

a) ASOM

b) CSOM

c) Atticoantral cholesteotoma

d) Acute mastoiditis

Correct Answer - C
Ans. is. C. Atticoantral cholesteotoma

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951. Sluder's neuralgia is also called as

a) Anterior ethmoidal syndrome

b) Posterior ethmoidal syndrome

c) Trotter syndrome

d) Lermoyez syndrome

Correct Answer - A

Ans. is 'a' i.e., Anterior ethmoidal syndrome [Ref Dhingra 6th/e p. 450]

Sluder's neuralgia

- It is also called anterior ethmoidal syndrome.
- It is said to originate from the middle turbinate pressing on the nasal septum.
- It is characterized by pain around the bridge of the nose radiating into forehead.
- Treatment Anatomical correction relieves the pain.

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952. Styloid process is derived from ?

a) 1st arch

b) 2nd arch

c) 3rd arch

d) 4th arch

Correct Answer - B
Styloid process is derived from 2nd pharyngeal arch.

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953. Most common cause of singer's nodule is ?

a) Infection

b) Allergy

c) Vocal abuse

d) None

Correct Answer - C
Ans. is 'c' i.e., Vocal abuse
Vocal nodule (singer's or screamer's nodule)

- Vocal nodule are benign noneoplastic growth on free edge of both the vocal cords at the junction of anterior 1/ 3 with posterior 2/3.
- This area is particularly vulnerable to trauma as this is the area of maximum vibration of the cord.
- The major cause is voice abuse, therefore it is most commonly seen in singers, actors, teachers, and howkers.
- Hoarseness is the most common symptom. Vocal fatigue and pain in neck on prolonged phonation are other symptoms.

Treatment

- Early cases of vocal nodules can be treated conservatively by educating the patient in proper use of voice. Many nodules especially in children, disappear with this treatment.
- Surgery is required for large nodules or long standing nodules in adults. *Microscopic (micorlaryngoscopic) excision* is the treatment of choice.

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954. Most common tumor of oropharynx is

a) Squamous cell carcinoma

b) Adenocarcinoma

c) Melanoma

d) Salivary gland tumors

Correct Answer - A

Ans. is 'a' i.e., Squamous cell carcinoma *[Ref Abeloff's Clinical Oncology 6" le p. 1059]*

90 – 95% of tumors in the oropharynx are squamous cell carcinomas, whereas others are minor salivary gland tumors, melanomas.

The most common manifesting symptoms are a nontender neck mass, dysphagia, otalgia, or a "hot potato" voice.

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955. Investigation of choice for diagnosing submandibular gland duct stones is

a) Ultrasound

b) X-ray of floor of mouth

c) Sialography

d) Sialoendoscopy

Correct Answer - A

Ans. is 'a' i.e., Ultrasound ***[Ref Churchill's pocket book of surgery p. 133]*** **Investigations for salivary gland stones**

- Ultrasound is the investigation of choice – as it permits assessment of the gland, duct system and calculus which usually has an acoustic shadow.
- 'Floor of mouth' radiographic view for submandibular calculi in Wharton's duct where ultrasound findings are equivocal or unavailable.
- If no stone is seen, consider sialography.
- Sialoendoscopy is increasingly used in the diagnosis and treatment of salivary gland outflow obstructive conditions.

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956. Deafness in a case of Paget's disease is due to

a) Retraction pockets

b) Otitis

c) Eight nerve involvement

d) Endolymphatic hydrops

Correct Answer - C

Ans. is 'c' i.e., Eight nerve involvement [Refer Neurology consult 5"/e p. 866]

Cranial nerve compression is the usual cause of deafness.

Complications of Paget's disease

Following complications can occur in Paget's disease : -

1. Fracture : Are common in weight bearing bones
2. Cranial nerve compression :- May cause impaired vision, facial palsy, trigeminal neuralgia or deafness.
3. Otosclerosis : - Another cause of deafness in Paget's disease.
4. Spinal canal stenosis and nerve root compression
5. High output cardiac failure
6. Osteoarthritis : of Hip and knee
7. Rarely osteosarcoma

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957. Membrane incised during hemilaryngectomy is

a) Thyrohyoid

b) Cricothyroid

c) Aryepiglottic

d) Infralaryngeal

Correct Answer - B

Ans. is 'b' i.e., Cricothyroid ***[Ref Dhingra ele*** **p.** ***310]***

- Indications and containdications
- Ideal for bulky lesions of the membranous true vocal cord
- Normal or slightly impaired vocal cord mobility
- No involvement of the supraglottis

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958. Snellen's chart is used to test:

a) Vision

b) Refraction

c) Presbyopia

d) Colour blindness

Correct Answer - A
Ans. Vision

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959. In Snellen's chart, eye subtends an angle of how many minutes with letters on Snellen's chart?

a) 1 min of arc

b) 5 min of arc

c) 10 min of arc

d) 15 min of arc

Correct Answer - B

Ans. is 'b' i.e., 5 min of arc

Indications:

- To provide a baseline recording of visual acuity (VA)
- To aid examination and diagnosis of eye disease or refractive error
- For medico-legal reasons

Equipment:

- Multi-letter Snellen chart
- E or C Snellen chart or a chart with illustrations for patients who cannot read or speak
- Plain occluder (not essential)
- Pinhole occluder
- Torch or flashlight
- Patient's documentation

Procedure:

- At the given distance, each letter subtends an angle of 5 min at the nodal point of the eye
- Snellen chart is used for distant vision.
- The patient should read the chart at a distance of 6 m.

Principle:

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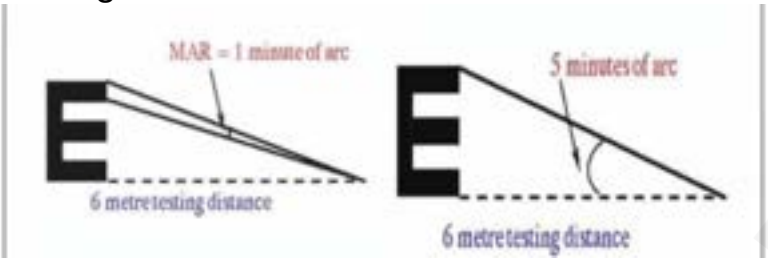
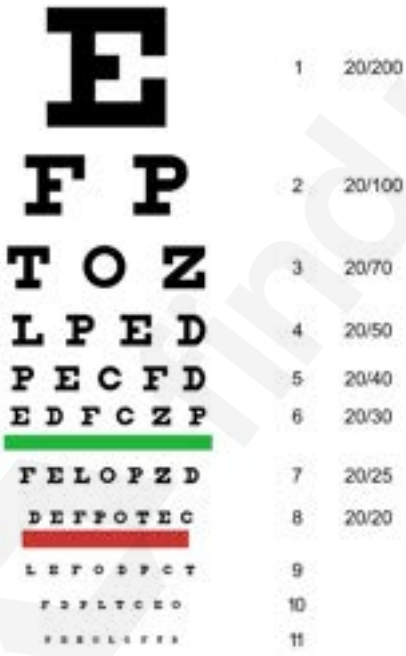
- It consists of letters arranged in lines, with progressively diminishing size.
- Each letter subtends an angle of 5 minutes at the nodal point of an eye when viewed from its respective distance
- Each letter is so constructed that the width (of each stroke) subtends an angle of 1 minute = MAR.



Interpretation:
Normal visual acuity for far is 6/5
Best visual acuity for far is 6/3
Minimum recordable VA on Snellen's chart is 1/60.
Snellen's chart:



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960. **Placido disc is used for diagnosing which of the following condition?**

a) Uveitis

b) Keratoconus

c) Retinoblastoma

d) Retinal detachment

Correct Answer - B

Placido disc examination is used to diagnose keratoconus. In a case of keratoconus, placido disc examination shows irregularities of the circles.

Placido's keratoscopic disc: It is a disc painted with alternating black and white circles. It may be used to assess the smoothness and curvature of corneal surface. Normally, on looking through the hole in the center of disc a uniform sharp image of the circle is seen on the cornea. Distortion of the circles occur when irregularities are present on the corneal surface.

Ref: Comprehensive Ophthalmology By AK Khurana, 4th edn, page 119

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961. Listers perimeter is used for

a) Kinetic Visual field testing

b) Static Visual field testing

c) Both kinetic and static visual testing

d) None of these

Correct Answer - A

Ans. is 'a' i.e., Kinetic Visual field testing *[Ref Kanski's 8th/e chapter 10, p. 325]*

- Static perimetry: A method of assessing fields, usually automated, in which the location of a stimulus remains fixed, with intensity increased until it is seen by the subject (threshold is reached) or decreased until it is no longer detected.
- Kinetic (dynamic) perimetry is now much less commonly performed than static perimetry. A stimulus of constant intensity is moved from a non-seeing area to a seeing area at a standardized speed until it is perceived, and the point of perception is recorded on a chart; points from different meridia are joined to plot an isopter for that stimulus intensity.
- Stimuli of different intensities are used to produce a contour map of the visual field. Kinetic perimetry can be performed by means of a manual (Goldmann) or an automated perimeter if the latter is equipped with an appropriate software program.

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962. What is the type of Goldman tonometry?

a) Applanation Tonometry

b) Dynamic countour tonometry

c) Rebound tonometry

d) Impression tonometry

Correct Answer - A

Ans. is 'a' i.e., Applanation Tonometry *[Ref Anatomy & physiology of eye 2"[1]/e* p. *79]*

Measurement of intraocular pressure (10P)

Measurement of IOP is done by :?

A) Manometry :- It is the only *direct measure* of IOP.

B) Tonometry :- It is an *indirect method* of measurement of IOP.

Following types of tonometers are there :-

1. Indentation (impression) tonometer :- These are the most commonly used tonometers. Example is Schiotz tonometer.
2. Applanation tonometer Goldmann applanation tonometer is the most accurate tonometer. Other types of applanation tonometers are perkin's tonometer, pneumatic tonometer, air-puff tonometer, Pulse air tonometer, Tono pen

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963. Spasm of accommodation mimics

a) Myopia

b) Hypermetropia

c) Amblyopia

d) Presbiopia

Correct Answer - A

Ans. is 'a' i.e.,Myopia [Ref Khurana ilth/e p. 42]

Pseudomyopia

- Spasm of accommodation occurs due to excessive contraction of the ciliary muscles.
- This makes the zonules loose and hence the lens becomes more convex.
- This leads to the image be formed in front of the retina therebt mimicking myopia.
- This is called pseudomyopia.

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964. Subretinal haemorrhage at the macula in myopia is known as?

a) Lacquer cracks

b) Foster Fuchs spot

c) Staphyloma

d) Macular retinoschisis

Correct Answer - B

Ans. is 'b' i.e., Foster fuchs spot

Degenerative myopia:

- Refractive error may increase upto 20-25D with degenerative changes in eye.
- Temporal myopic crescent is a feature of pathological/degenerative myopia.
- It is a white crescent at the temporal border of the disc.

Some of the most typical features of degenerative myopia are:

- Vitreous liquefaction and posterior vitreous detachment
- Peripapillary atrophy appearing as temporal choroidal or scleral crescents or rings around the optic disc
- Lattice degeneration in the peripheral retina
- Tilting or malinsertion of the optic disc, usually associated with myopic conus
- Thinning of the retinal pigment epithelium with resulting atrophic appearance of the fundus
- Ectasia of the sclera posteriorly (posterior staphyloma)
- Breaks in Bruch's membrane and choriocapillaris, resulting in lines across the fundus called "lacquer cracks"
- Foster Fuch's spot in the macular area.

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965. Dispersive prism functions for

a) Splitting light into different wavelengths

b) Reflecting light

c) Polarizing light

d) None

Correct Answer - A

Ans. is 'a' i.e., Splitting light into different wavelengths *[Ref "The Discovery of the Spectrum of Light".]*

- "Prisms may be used for polarising and reflecting light but dispersive prisms like the commonly used triangular prism split the light into different colours based on wavelengths"
- In optics, a prism is a transparent optical element with flat, polished surfaces that refract light. At least two of the flat surfaces must have an angle between them. The exact angles between the surfaces depend on the application. The traditional geometrical shape is that of a triangular prism with a triangular base and rectangular sides.
- Light changes speed as it moves from one medium to another (for example, from air into the glass of the prism). This speed change causes the light to be refracted and to enter the new medium at a different angle (Huygens principle). The degree of bending of the light's path depends on the angle that the incident beam of light makes with the surface, and on the ratio between the refractive indices of the two media (Snell's law). The refractive index of many materials (such as glass) varies with the wavelength or color of the light used, a phenomenon known as dispersion. This causes light of different colors to be refracted differently and to leave the prism at different angles, creating an effect similar to a rainbow.

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966. Goblet cells are seen in -

a) Cornea

b) Conjunctiva

c) Retina

d) Vitreous

Correct Answer - B

Answer B. Conjunctiva

Goblet cells within the conjunctival epithelium are specialized cells that secrete mucins onto the surface of the eye.

Histology of conjunctiva

The epithelium is non-keratinizing and around five cell-layers deep. Mucin-secreting goblet cells are located within the epithelium, and they are most dense inferonasally (nasal > inferior) and in the fornices.

The stroma (substantia propria) consists of richly vascularized, loose connective tissue. The accessory lacrimal glands of Krause and Wolfring are located deep within the stroma.

Conjunctiva-associated lymphoid tissue (CALT) is critical in the initiation and regulation of ocular surface immune responses.

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967. Schwalbe's ring corresponds to:

a) Corneal endothelium

b) Descemet's membrane

c) Schlemm's canal

d) Ciliary body

Correct Answer - B
Ans. Descemet's membrane

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968. Corneal epithelial repair includes all of the following phases except

a) Cell proliferation

b) Cell migration

c) Cell adhesion

d) Cell fusion

Correct Answer - D

Ans. is 'd' i.e., Cell fusion [Ref Corneal Epithelial wound healing: BJO 1994, 78; 401-408]

Corneal epithelial repair

- The processes involved in the healing of corneal epithelial wounds can be divided into three distinct components: cell migration, **cell proliferation, and cell adhesion.**
- All three components are part of a continuous process but the contribution of each can vary depending on the size and depth of the wound and nature **of** injury.

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969. Conjunctival staining is done by all except

a) Fluoroscein

b) India ink

c) Rose Bengal

d) Lissamine

Correct Answer - B
Ans. is 'b' i.e., India ink [Ref Can J Ophthalmol. 2015 Aug;50(4):273-7. doi: 10.1016/j.jcjo.2015.05.007.]
Common dyes used for conjunctival staining : Rose Bengal, Fluoroscein and Lissamine.

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970. Treatment of mooren's ulcer is?

a) Corneal graft

b) Immunosuppressives

c) Topical steroids

d) All of the above

Correct Answer - D
All of the above REF: Khurana 4th ed p. 110
MOOREN'S ULCER:

- Severe inflammatory peripheral ulcerative keratitis , chronic serpigenous or rodent ulcer
- Treatment:

1. Topical corticosteroids
2. Immunosuppressives with systemic steroids , e.g. cyclosporine
3. Soft contact lens
4. Lamellar or full thickness corneal grafting

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971. Pseudogerontoxon is seen in

a) Vernal keratopathy

b) Choroidal melanoma

c) Trachoma

d) Retinoblastoma

Correct Answer - A

Ans. is 'a' i.e., Vernal keratopathy ***[Ref Kanski 8'1* Chap. 5, p. 138]***

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972. A 50 year old male presents with cicatricial entopion of upper and lower eyelid. On eversion of upper eyelid, linear conjunctival scars - Arlt line are seen. What is the diagnosis?

a) Trachoma

b) Spring catarrah

c) Ligneous conjunctivitis

d) Parinaud oculoglandular syndrome

Correct Answer - A

Ans. is 'a' i.e.,Trachoma [Ref Kanski 8th /e Chap. 5, p. 138]

Arlt line is a feature of trachoma.

Signs of Trachoma

- Conjunctival signs :- Congestion, conjunctival follicles (boiled sagograin like), Papillary hyperplasia, conjunctival scarring (Arles line), concretion.
- Corneal signs :- Superficial keratitis, Herbert follicles, Pannus, Corneal ulcer, Herbert pits, Corneal opacity.

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973. Pain is out of proportion to signs in which corneal ulcer?

a) Herpes simplex keratits

b) Acanthamoeba keratitis

c) Fungal keratitis

d) Pneumococcal keratitis

Correct Answer - B

Ans. is 'b' i.e.,Acanthamoeba keratitis [Ref Kanski 8th le Chap. 6, p. 197]

- In human, acanthamoeba causes :- (i) Keratitis; (ii) Granulomatous encephalitis, (iii) Fulminant meningoencephalitis
- Patient presents with very severe pain (which is out of proportion to the degree of clinical signs), watering, photophobia, blurred vision and blepherospasm. On examination, following characteristic features are seen : ?

.. **Initial lesions (Epithelial lesions)** :- Initially the Acanthamoeba keratitis shows typical reticular pattern due to radial keratoneuritis (Radial perineuritis). At this stage it is commonly mistaken for herpes simplex keratitis because of pseudodentritic epithelial lesion (dentritic ulcer morphology).

2. **Advanced cases (Stromal involvement)** :- Over a period of weeks stromal signs develop with central or paracentral ring shaped lesion with stromal infiltrate and an overlying epithelial defect, ultimately presenting as ring abscess. There may be radial perineuritis, Wessely (inflammatory) ring and hypopyon.

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974. Which of the following is not a feature of fungal corneal ulcer?

a) Fixed hypopyon

b) Ulcer with sloughing margins

c) Symptoms are more pronounced than signs

d) Fungal hyphae are seen on KOH mount

Correct Answer - C
Ans. c. Symptoms are more pronounced than signs

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975. Oblate ellipsoid appearance of cornea is seen in which of the following conditions?

a) Post myopic LASIK surgery

b) With the rule astigmatism

c) Bi-oblique astigmatism

d) Oblique astigmatism

Correct Answer - A

Ans. is 'a' i.e., Post myopic LASIK surgery [Ref Quality of vision: Essential Optics for the cataract and refractive surgeon, chap. 3, p. 30]

The cornea is a three dimensional prolate ellipsoid, like a bullet or a tulip. It is steeper in the centre and flatter in the periphery.

After refractive surgeries like myopic LASIK, cornea is converted to oblate ellipsoid, which is steeper in the periphery and flatter in the centre.

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976. Which of the following Glycosaminoglycans are not present in cornea

a) Keratin sulfate

b) Chondroitin sulfate

c) Chondroitin

d) Heparin sulfate

Correct Answer - D

Ans. is 'd' i.e., Heparin sulfate [Ref Khurana Anatomy and Physiology of Eyes, ?^{d}ie, chapter 2, p. 26)

- GAGs (Glycosaminoglycans) or so called acid-mucopolysaccharides represent 4-4.5% of the dry weight of the cornea.
- Cornea contains three major GAG fractions namely: Keratan sulfate (50%), chondroitin sulfate (25%) and chondroitin (25%)-present exclusively in cornea.
- The GAG are present in the interfibrillar space of the corneal stroma and account for the `stromal swelling pressure'(normal-60 mmHg) ie. Its tendency to imbibe water and thus plays an important role in the maintenance of corneal hydration level and transparency. An abnormal accumulation of GAG occurs in the corneal stroma of the patients affected by the inborn errors of GAG metabolism known as mucopolysaccharidosis.

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977. Iron deposition line at edge of pterygium on corneal epithelium is known as?

a) Stocker's line

b) KF Ring

c) Fleischer ring

d) Ferrys line

Correct Answer - A

Ans. is 'a' i.e., Stocker's line [Ref: Khurana 4'^{5}/e p. 80; Parson 21"/e p. 181; Yanoff & Ducker Ophthalmology yd le p

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978. Gene for eye morphogenesis

a) Pax-6

b) BMP-4

c) HOX-D13

d) HOX-A13

Correct Answer - A

Ans. is 'a' i.e., Pax-6

- The Pax-6 gene locus is a transcription factor for various genes and growth factors involved in eye formation.Pax-6 is a master control gene for eye morphogenesis and encodes for Paired box protein Pax-6 (also called aniridia type II protein or oculorhombin).

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979. The percentage of atropine present in atropine drops as cycloplegic is:

a) 0.5%

b) 1%

c) 4%

d) 2%

Correct Answer - B
1%

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980. Which order neuron is optic nerve in the visual pathway?

a) First order

b) Second order

c) Third order

d) None of these

Correct Answer - B

Ans. is 'b' i.e., Second order [Ref Khurana 4th/e p. 286-289; Concise textbook of physiology 2"/e p. 336]

Sensory organs → Photoreceptors (Rods & cones)

Neurons of first order → Axon of bipolar cells (in Retina)

Neurons of second order → Axons of ganglionic cell (Retina i.e., Optic disc, Optic nerve, Optic chiasma, optic tracts)

Neurons of third order → Axons from nerve cells in lateral geniculate body (optic radiation)

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981. Purkinje image test is used in

a) Keratomoter

b) Retinoscopy

c) Optical coherence tomography

d) Pachymeter

Correct Answer - D

Ans. is 'd' i.e.,Pachymeter [Ref Elkington's clinical optics 3rd/e chapter 14, p. 207]

- Pachymetry is the measurement of corneal thickness. Pachymeters employ either optical or ultrasound principles.
- Optical pachymeters use the Purkinje-Sanson images formed by the anterior and posterior surfaces of the cornea (images I and II) to measure corneal thickness, and the Purkinje-Sanson images formed by the posterior surface of the cornea and the anterior surface of the lens (images II and III) to measure the depth of the anterior chamber.

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982.

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Which of the following is not a part of uveal

a) Iris

b) Ciliary body

c) Choroid

d) Retina

Correct Answer - D

Ans. is 'd' i.e.,Retina [Ref Khurana's 2"/e Chap. 3, p. 44]

- Uveal tissue constitutes the middle vascular coat of the eyeball (Inner coat is retina and outer coat is cornea & sclera). From anterior to posterior it can be divided into three parts :- Iris, ciliary body and choroid. Iris and anterior part (2 mm) of ciliary body(pars plicata) are considered as anterior uveal tissues.
- Posterior part (4mm) of ciliary body (pars plana) and adjacent choroid are considered as intermediate uveal tissue. Choroid is considered as posterior uveal tissue. The entire uveal tract is developmentally, structurally and functionally one individual structure.

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983. All except one are true for Scleromalacia perforans

a) It is non inflammatory scleritis

b) It affects only males

c) Perforation of the globe is extremely rare

d) Vision is unaffected

Correct Answer - B

Ans. is 'b' i.e., It affects only males [Ref Kanski's Clinical Ophthalmology 8"Ve chapter 8, p. 259]

Scleromalacia perforans

- Scleromalacia perforans (5% of scleritis) is a specific type of progressive scleral thinning without inflammation that typically affects elderly women with longstanding rheumatoid arthritis, but has also been described in association with other systemic disorders. Despite the nomenclature, perforation of the globe is extremely rare as integrity is maintained by a thin layer of fibrous tissue. Differential diagnosis is from the innocuous scleral hyaline plaque and senile scleromalacia.

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984. **Transport of Ascorbic acid to lens is done by which of the following?**

a) Myoinositol

b) Choline

c) Taurine

d) Na-K ATPase

Correct Answer - D

The lens epithelium is the principal site of energy production of the lens that is used for transport of inorganic ions and amino acids by an active process involving Na and K activated ATPase.

Ref: Histopathology of Preclinical Toxicity Studies: Interpretation and Relevance ... By Peter Greaves, Peter Greaves (M.B., Ch.B.), 2007, Page 896; Transport of vitamin C in the lens, Curr Eye Res. 1987 Jul;6(7):885-96; Adler's Physiology of the eye 10th Edition, Page 131; Ascorbic acid and the Eye, Am J Clin Nutr 1991;54:1198S-1202S.

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985. Blue dot cataract is caused by

a) Diabetes

b) Wilson's disease

c) Atopic dermatitis

d) Chalcosis

Correct Answer - C
Ans. is 'c' i.e.,Atopic dermatitis [Ref Parson's 21"/e p. 259]
Blue dot cortical cataract is caused by myotonic dystrophy and atopic dermatitis.

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986. Which of the following is complication of prolonged use of corticosteroid eye drops?

a) Posterior Subcapsular cataract

b) Nuclear cataract

c) Capsular cataract

d) Cortical cataract

Correct Answer - A

Ans. is 'a' i.e., Posterior Subcapsular cataract

Causes of posterior subcapsular cataract :

Myotoic dystrophy	Down's syndrome	Ionizing radiation
Wilson's disease	Corticosteroids	Galactosemia
DM	Busulfan	Senile cataract
Infrared/heat cataract (glass-blower's or glass worker)	Chloroquine	Trauma
	Atopic dermatitis	

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987. False about treatment of cataract in children is

a) ECCE is the treatment of choice

b) In case of bilateral cataract imparing vision surgery must be done by 4-6 weeks of age

c) Lensectomy is not one of the methods of extracapsular extraction

d) Intraocular lens implantation must be done only after 2 years of age

Correct Answer - C

Ans. is 'c' i.e., Lensectomy is not one of the methods of extracapsular extraction [Ref Textbook of pediatric cataract surgery p. 194]

- The critical period for developing the fixation reflex in both unilateral and bilateral visual deprivation disorders is between 2-4 months of age. Any cataract dense enough to impair vision must be dealt with before this age and the earliest possible time is preferred.

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988. What is the new advance in cataract surgery?

a) Femtosecond Laser

b) Neodymium Laser

c) Nanosecond Laser

d) Picosecond Laser

Correct Answer - A

Ans. is 'a' i.e., Femtosecond laser [Ref Femtosecond laser-assisted cataract surgery: Kendall E. Donaldson, Rosa Braga-Mele,Florence Cabot, for the ASCRS Refractive Cataract Surgery Subcommittee]

- Femtosecond laser-assisted cataract surgery provides surgeons an exciting new option to potentially improve patient outcomes and safety.
- In this surgery a femtosecond laser is used for various steps like lens fragmentation and capsulotomy.
- Although the results have been good the technology is currently very expensive.

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989. Which of the following step is not done during phacoemulsification surgery for cataract?

a) Irrigation and drainage of cortex

b) Continuous curvilinear capsulorrhexis

c) Foldable IOL implantation

d) Sclerocorneal tunnel

Correct Answer - D

Ans. is 'd' i.e., Sclerocorneal tunnel [Ref Phacoemulsification by vajpayee]

- The steps in phacoemulsification include : (i) Corneoscleral incision, (ii) Continuous curvilinear capsulorrhexis, (iii) Hydrodissection and hydrodelineation, (iv) Emulsification and aspiration of nucleus and then cortex, (v) Foldable IOL implantation in posterior chamber.

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990. Phacoemulsification uses

a) High frequency sound waves

b) Infrared waves

c) Ultraviolet rays

d) None of these

Correct Answer - A

Ans. is 'a' i.e., High frequency sound waves [Ref Kanski's 8th/e chapter 9, p. 281]

In Phacoemulsification, lens nucleus is emulsified using high frequency sound waves.

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991. Post operative complications of cataract are all except?

a) After cataract

b) Endophthalmitis

c) Glaucoma

d) Scleritis

Correct Answer - D

Ans. is 'd' i.e., Scleritis [Ref Ophthalmology by Duker 2"^{d}/e p. 484]

There are so many complications of cataract surgery, Here are only important ones:?

- After cataract (opacification of capsule)
- Retinal detachment
- Vitreous prolapse & loss
- Neovascular glaucoma
- Cystoid macular edema
- Anterior uveitis (iridocyclitis)
- Endophthalmitis
- Iris prolapse
- Aphakic glaucoma
- Stria keratopathy & Pseudophakic bullous keratopathy
- Fibrous & endothelial growth
- Corneal endothelial damage

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992. Which of the following is the most important factor in the prevention of the endophthalmitis in cataract surgery?

a) Preoperative preparation with povidone iodine

b) One week antibiotic therapy prior to surgery

c) Trimming of eyelashes

d) Use of intravitreal antibiotics

Correct Answer - A
Ans. Preoperative preparation with povidone iodine

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993. Hemeralopia is seen in

a) Retinal detachment

b) Retinitis pigmentosa

c) Optic neuritis

d) Subcapsular cataract

Correct Answer - D

Ans. is 'd' i.e., Subcapsular cataract [Ref Kanski 8th/e Chap. 9, p. 270]

Hemeralopia is the inability to see clearly in bright light (also known as day blindness) and is the exact opposite of nyctalopia (night blindness).

Subcapsular cataract

- Anterior subcapsular cataract lies directly under the lens capsule and is associated with fibrous metaplasia of the lens epithelium.
- Posterior subcapsular opacity lies just in front of the posterior capsule and has a granular or plaque-like appearance on oblique slit lamp biomicroscopy, but typically appears black and vacuolated on retroillumination; the vacuoles are swollen migratory lens epithelial cells (bladder or Wedl), similar to those commonly seen postoperatively in posterior capsular opacification. Due to its location at the nodal point of the eye, a posterior subcapsular opacity often has a particularly profound effect on vision.
- Patients are characteristically troubled by glare, for instance from the headlights of oncoming cars, and symptoms are increased by miosis, such as occurs during near visual activity and in bright sunlight (day blindness).

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994. A child has got a congenital cataract involving the visual axis which was detected by the parents right at birth. This child should be operated:

a) Immediately

b) At 2 months of age

c) At 1 year of age when the globe becomes normal sized

d) After 4 years when entire ocular and orbital growth becomes normal

Correct Answer - A

Ans. A [Immediately]

Congenital cataract - Timing of surgery

1. **Bilateral dense** - cataract requires early surgery (i.e. **by 6 weeks of age**) to prevent the development of stimulus deprivation amblyopia
2. **Bilateral partial**- cataract may not require surgery until later if at all, in cases of doubt, it may be prudent to defer surgery monitor lens opacity, and visual function and intervene later if vision deteriorates.
3. **Unilateral dense** - cataract merits urgent surgery (**within days**) followed by aggressive anti-amblyopia therapy the cataract is detected after 16 weeks of age then surgery can be delayed little because amblyopia is refractory
4. **Partial unilateral** - cataract can usually be observed or treated non surgically with pupillary dilatation and possibly part-time contralateral occlusion to prevent amblyopia "The critical period of developing the fixation reflexes in both unilateral and bilateral visual deprivation disorders is between 2 and 4 months of age, any cataract dense enough to impair vision must be dealt with before this

age and the earliest possible time is preferred"

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995. Which of the following is a good dye is used for lens in cataract surgery?

a) Trypan Blue

b) Fluoroscein

c) India ink

d) None

Correct Answer - A

Ans. is 'A

Trypan blue dye for anterior segment surgeries

- Trypan blue has been used as an adjunct for improving visualization of the anterior capsule during phacoemulsification of mature white cataracts for the past few years.
- Surgeons have long used dyes like indocyanine green, fluorescein, and trypan blue to stain the anterior capsule in order to facilitate the surgical procedure.
- **studies comparing these 3 dyes have concluded that trypan blue provides significantly more intensive staining of the anterior lens capsule than the others**
- **Trypan blue is easier to use than indocyanine green, because it comes in a premixed solution, and it is available at a more economical price.**

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996. Which of the following is a layer between choroid and retina?

a) Bruch's membrane

b) Descemet's membrane

c) Photoreceptors

d) Ganglion cell layer

Correct Answer - A

Ans. is 'a' i.e.,Bruch's membrane [Ref Parson's 21"/e p. 321]

Bruch's membrane is the innermost layer of the choroid. It is also called the vitreous lamina, because of its glassy microscopic appearance. It is 2-4 thick. It lies between choroid and the retina.

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997. 100 day glaucoma is caused by

a) CRVO

b) CRAO

c) Buphthalmos

d) Age related macular degeneration

Correct Answer - A

Ans. is 'a' i.e., CRVO

- 100-day glaucoma is typically seen in Ischemic CRVO.
- Following central retinal vein occlusion, flame-shaped haemorrhages develop in the nerve fiber layer of the retina, especially around the optic disc, as a result of the high intravascular pressure that dilates the veins and collateral vessels.
- Edema of the optic disc and retina occur because of impaired absorption of interstitial fluid.
- Vision is generally poor but may recover surprisingly well, considering the severity of the funduscopic changes.
- Intractable closed-angle glaucoma, with severe pain and repeated haemorrhages, commonly occurs 2 to 3 months after central retinal vein occlusion (100-day glaucoma'; 'thrombotic glaucoma'), owing to neovascularization of the iris and adhesions between the iris and the anterior chamber angle (peripheral anterior synechiae).

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998. Keeth Wagner classification is for

a) Hypertensive retinopathy

b) Diabetic maculpathy

c) CRVO

d) CRAO

Correct Answer - A

Ans. is 'a' i.e.,Hypertensive retinopathy [Ref Robart W. Schrier 8"/e p. 1377]

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999. All are seen in non-proliferative diabetic retinopathy except ?

a) Microaneurysm

b) Neovascularization

c) Hard exudates

d) Macular edema

Correct Answer - B

Ans. is 'b' i.e., Neovascularization

Classification of Diabetic retinopathy

Nonproliferative	**Proliferative**
Background retinopathy	
1. Microaneurysm	
2. Dot and blot hemorrhage (deep hemorrhage)	**Neovasculorization of the disc (NVD)**
3. Hard exudate	1. Neovasculaization elsewhere in the retina (NVE)
4. Macular edema	2. Viffeous hemorrhage
B) Preproliferative retinopathy	3. Fibrovascular proli feration
1. Cotton-wool spots (soft exudates)	4. **Trsction retinsl detachment**
2. Venous beading	5. **Iris surface neovascularization (rubeosis iridis or neovascular glaacoma)**
3. Extensive hemorrhage	
4. Intraretinal intrava scul ar abn ormalities (IRMA	

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1000. All of the following are the causes of exudative retinal detachment except:

a) Retinopathy of toxaemia of pregnancy

b) Retinopathy of prematurity

c) Exudative retinopathy of Coats

d) Sympathetic ophthalmia

Correct Answer - B
Ans. Retinopathy of prematurity

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1001. In which of the following, intraocular pressure is very high and inflammation is minimum?

a) Glaucomatocyclic crisis

b) Acute iridocyclitis

c) Hypetensive uveitis

d) Angle closure glaucoma

Correct Answer - A

Ans. is 'a' i.e.,Glaucomatocyclic crisis [Ref Khurana 4th/e p. 160]

Glaumatocyclic crisis

- Glamatocyclitic crisis (Posner - Schlossman syndrome) is a unilateral recurrent non- granulomatous iritis that is associated with an elevated ocular pressure during the attacks. This self- limiting condition tends to occur in persons during the third to sixth decade and the visual fields, the optic nerve head, and anterior chamber angle are normal.
- A mild inflammatory reaction is very rarely present as evidenced by a few keratic precipitates on the posterior surface of the cornea. The cause of the glaucoma remains unknown, but a trabeculitis is suspected. Many patients (55%) subsequently develop open angle glaucoma

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1002. Cell bodies of Muller's Cells are present in which layer of retina?

a) Inner limiting membrane

b) Outer nuclear layer

c) Retinal pigment epithelium

d) Ganglion cell layer

Correct Answer - A

Ans. is 'a' i.e., Inner limiting membrane [Ref Histology of the Eye, edited by William Krause, Dept. Pathology and Anatomical science, University of Missouri School of Medicine]

- Inner limiting membrane - basement membrane elaborated by Muller cells.
- Nerve fibre layer - axons of the ganglion cell nuclei (note that a thin layer of Muller cell footplates exists between this layer and the inner limiting membrane).
- Ganglion cell layer - contains nuclei of ganglion cells, the axons of which become the optic nerve fibres for messages and some displaced amacrine cells.
- Inner plexiform layer - contains the synapse between the bipolar cell axons and the dendrites of the ganglion and amacrine cells.
- Inner nuclear layer - contains the nuclei and surrounding cell bodies (perikarya) of the amacrine cells, bipolar cells and horizontal cells.
- Outer plexiform layer - projections of rods and cones ending in the rod spherule and cone pedicle, respectively. These make synapses with dendrites of bipolar cells. In the macular region, this is known as the Fiber layer of Henle.
- Outer nuclear layer - cell bodies of rods and cones.
- External limiting membrane - layer that separates the inner segment

portions of the photoreceptors from their cell nucleus.
- Layer of rods and cones - layer of rod cells and cone cells.
- Retinal pigment epithelium - single layer of cuboidal cells. This is closest to the choroid.

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1003. Retinal tears seen most commonly seen in ?

a) Primary retinal detachment

b) Secondary retinal detachment

c) Tractional retinal detachment

d) Exudative retinal detachment

Correct Answer - A

Ans. is 'a' i.e., Primary retinal detachment

Retinal detachment is a disorder of eye in which retina peels away from its underlying layer of support tissue. Usually there is separation between the neuroepithelium (neurosensory epithelium) and the pigmented layer.

The retinal separation is divided into:

1. Primary :- Rheugmatogenous retinal detachment.
2. Secondary :- Tractional retinal detachment and exudative retinal detachment.

Rhegmatogeneous retinal detachment

- This is the commonest type of retinal detachment. This is due to a retinal break/tear/hole which allows the liquid vitreous to seeps into the subretinal space and separates the sensory retina from the pigmentary epithelium.
- Predisposing factors include : (i) Myopia, (ii) Previous intraocular surgery : cataract extraction, (aphakia) or pseudoaphakia); (iii) Trauma; (iv) Retinal degeneration (Lattice degeneration; Snail track degeneration, Senile or degenerative retinoschisis.
- Tractional retinal detachment
- It is due to pulling on the retina usually from fibro-vascular band in the vitreous cavity, i.e., *vitroretinal band.*

- Exudative retinal detachment (solid retinal detachment)
- It occurs due to the retina being pushed away by accumulation of fluid or a neoplasm beneath the retina. This type of detachment is caused by inflammatory disorders or by tumors.

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1004. An elderly male with heart disease presents with sudden loss of vision in one eye; examination reveals cherry red spot; diagnosis is:

a) Central retinal vein occlusion

b) Central retinal artery occlusion

c) Amaurosis fugax

d) Acute ischemic optic neuritis

Correct Answer - B
B i.e. Central Retinal Artery Occlusion
Central retinal artery occlusion characteristically presents with *sudden painless loss of vision, cherry red spot & cattle-truck appearanceQ* (of retinal veins usually).
Source of emboli from carotid artery & heart disease, and thrombus from arteriosclerosis along with hypertension & arteritis are predisposing factors.

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1005. Which of the following is true about signs of angle in closure glaucoma except

a) Vertical semi dialted puil

b) Edematous cornea

c) Multiple iris nodules

d) Edematous and hyperemic optic disc

Correct Answer - C

Ans. is 'c' i.e., Multiple iris nodules [Ref Parson's 21"/e p. 290]

Clinical features of angle closure glaucoma

- Conjunctiva is chemosed and congested (both conjunctival & ciliary vessels are congested).
- Cornea is oedematous and insensitive
- Anterior chamber is very shallow & with aqueous flare Angle of anterior chamber is closed (on gonioscopy)
- Iris is discoloured
- Pupil is semidilated, vertically oval and fixed. It is non reactive to both light and accommodation.
- IOP is markedly raised (40- 70 mm Hg)
- Optic disc is oedematous & hyperemic
- Fellow eye shows shallow anterior chamber and a narrow angle.

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1006. Which of the following is false statement about vitreous?

a) Anatomically, vitreous is present in anterior segment

b) Vitreous largely contain water and hyaluronic acid

c) Strongest attachment of vitreous base is at ora serrata

d) Vitreous is attached anteriorly to the lens

Correct Answer - A

Ans. is 'a' i.e., Anatomically, vitreous is present in anterior segment [Ref Kanski 8thie Chap. 17, p. 722]

- Vitreous is present in posterior segment of eye.
- Vitreous humor is a jelly like fluid liquid that fills most (80%) of the eye (from the lens back, i.e., in the posterior segment). The vitreous consists largely of water (99%), a network of collagen fibrils, large molecules of hyaluronic acid, peripheral cells (hyalocytes), and mucopolysaccharides, forming a gel - like material.
- There is a potential space between vitreous and retina, called subhyaloid space. As we age, vitreous changes from a gel to a liquid and gradually shrinks separating from the retina. This is when people start seeing floaters (black spots in front of the eye).

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1007. Phacodonesis is seen in all except

a) Traumatic injury to the eye

b) Hypermature cataract

c) Pseudoexfoliation

d) Diabetes mellitus

Correct Answer - D

Ans. is 'd' i.e., Diabetes mellitus [Ref Kanski 8thie p. 300]

Phacodonesis is the tremulousness or vibration of the lens with eye movement.

It is seen in:

1. Trauma
2. Pseudoexfoliation syndrome
3. Hypermature cataract
4. Ectopia lentis

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1008. Onset of stereopsis occurs at the age of:

a) 3 to 5 months

b) 1 to 2 years

c) 5 years

d) 7 years

Correct Answer - A
Ans. 3 to 5 months

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1009. Homonymous hemianopia type of visual field defect is seen in all except ?

a) Lateral geniculate body

b) Total optic radiation

c) Optic tract

d) Optic chaisma

Correct Answer - D
Ans. is 'd' i.e., Optic chaisma

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1010. Normal vision with absence of direct & consensual light reflex, which nerve is involved ?

a) Optic

b) Oculomotor

c) Trigeminal

d) Abducens

Correct Answer - B

Ans. is 'b' i.e., Oculomotor

This question can be solved by simple basic knowledge :-

Among the given options only oitic nerve and occulomotor newes are related to light reflex'

a In optic nerve injury vision is also impaired (vision is normal in the question)'

n Thus answer is oculomotor nerve

- When light is shone to one (e.g. left) eye. left optic nerve canies afferent impulse to brain and from brain efferent
- impulse to ipsiplateral (left) eye comes through ipsilateral (left) occulomotor nerye (for direct light reflex) and efferent
- for contralatcral (right) eye comes through contralateral (right) occulmotor nerve for consensual light reflex' When
- light is shone to other (right) eyc, right optic nerve carries afferent impulse to brain and from brain, efferent impulse to
- right eye (for direct light reflex) comes through right occulmotor nerve and effcrent fbr left eye (for consensual light **reflex) comes through left occulomotor nerve' So :-**
- Optic newe is responsibtefor direct light reJlex in ipsilateral eye and

consensual light reflexfor contralateral

- eye. (lnabove example, afferent for right sided direct and left sided consensual light reflex is through right optic
- nerve; and atl-erent for left sided direct and right sided consensual light reflex is through left optic nerve)'
- Occulomotor nerve is responsible for direct and consensual light reflex in the same eye' (ln above example'
- efferent for right sided direct as rvell as consensual light reflex is through right occulmotor nerve and ef'ferent for
- left sided direct as well as consensual light reflex is through left occulomotor nerve)'

In complete optic nerve lesion of one side (Amaurosis light reflex or total afferent pupillary fect)

The ipsilateral direct reflex is lost
The ipsilateral conscnsual reflex is intact
The contralateral direct reflex is intact
The contralateral consensual reflex is lost

In occulomotor nerve lesion ofone side (efferent pupillarydefect

The ipsilateral direct reflex is lost
The ipsilateral consensual reflex is lost
The contralateral direct reflex is intact
The contralateral consensual reflex is intact

1011. Which of the following is true about divergent squint

a) It is also called exotropia

b) It is more common than convergent squint

c) It is a feature of 6th nerve palsy

d) All of the following

Correct Answer - A

Ans. is 'a' i.e., It is also called exotropia [Ref Pediatric strabismus 4th/e p. 218-224]

- Divergent squint is also called as exotropia.
- It less common than convergent squint (esotropia).
- 6th nerve palsy causes convergent squint.

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1012. Crossed eye fixation is positive in -

a) Esotropia

b) Exotropia

c) Hypertropia

d) Hypotropia

Correct Answer - A

Ans. is 'a' i.e.,Esotropia [Ref Internet]

- Cross fixation is the use of the right eye to view the left visual field and the use of the left eye to view the right visual field. This behavior is very common in children with infantile esotropia. Cross fixation often causes the appearance of not looking directly at a target and parents often wonder if vision is reduced.

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1013. Partial ptosis is oculomotor nerve injury is due to intact -

a) Supply from opposite oculomotor nerve

b) Sympathetic innervation

c) Parasympathetic innervation

d) Action of orbicularis oculi

Correct Answer - B

Ans. is 'b' i.e., Sympathetic innervation [Ref Textbook of ophthalmic reconstructive surgeries p. 786]

Motor nerve supply of lid is through three sources :?

1. Facial nerve supplying orbicularis oculi, (closing of lid)
2. Oculomotor supplying levator palpebrae superioris;
3. Sympathetic fibres supplying muller's muscle.
4. Both LPS and Muller muscle function to retract the lid, hence only partial ptosis is seen in oculomotor nerve palsy.

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1014. **Painful eye movement is a feature of :**

a) Iridocyclitis

b) Papilledema

c) Corneal ulcer

d) Vernal catarrh

Correct Answer - A

Anterior uveitis , also known as iridocyclitis and iritis, is the inflammation of the iris and anterior chamber. Anywhere from two-thirds to 90% of uveitis cases are anterior in location. Injection, photophobia, pain, and blurred vision usually accompany iritis (anterior uveitis or iridocyclitis).

Ref : Braverman R.S. (2012). Chapter 16. Eye. In W.W. Hay, Jr., M.J. Levin, R.R. Deterding, J.J. Ross, J.M. Sondheimer (Eds), *CURRENT Diagnosis & Treatment: Pediatrics*, 21e.

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1015. Retinoblastomas show all of the following except

a) Small round cells

b) Necrosis

c) Pseudorosettes and Fleurettes

d) None

Correct Answer - D

Ans. 'd' is None (All are seen) [Ref Khurana 4thie p. 281]

Histology of retinoblastomas

- The tumor arises from small round cells with large nuclei, i.e., it is a tumor of a group called small round blue cell tumors.
- Microscopic features of a well differentiated tumor include Flexnerwintersteiner rosettes (specific for retinoblastoma), Homer Wright rosettes, pseudorosettes and fleurettes formation.

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1016. Which of the following is most common visual defect in papilloedema

a) Amourosis fugax

b) Homonymous hemianopia

c) Homonymous quadrantopia

d) Glare

Correct Answer - A

Ans. is 'a' i.e., Amourosis fugax [Ref Clinical opthalmology 2"^{d}% p. 349, 350]

- Initially the symptoms of papilloedema are due to increased ICT, e.g. headache, nausea, projectile vomiting and papilloedema.
- Vision is normal initially.
- In 25% of patients visual symptoms occur only in advanced severe papilloedema, when optic atrophy sets in.
- Typically, there is recurring brief episodes (transient) of visual obscurations (Amaurosis fugax) lasting less then 30 seconds, in which vision turns grey or blacks, sometimes decribed as if a veil has fallen over the eyes.
- The symptoms usually affect both eyes at once as papilloedema is bilateral.
- Central vision is affected late in the disease.
- Initially there is enlargement of blind spot and progressive contraction of the visual field (visual field becomes smaller).
- Complete blindness sets in eventually.
- Thus, characteristically there is gradually progressive painless loss of vision

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1017. What is the treatment of meibomianitis ?

a) Cleansing the lid edges

b) Application of moist heat

c) Local antibiotics

d) All of the above

Correct Answer - D

Ans. is 'd' i.e., All of the above [Ref Foster CS. The eye in skin and mucous membrane disorders. In: Tasman W, Jaeger EA, eds. Duane's Ophthalmology . 15th ed. Philadelphia, Pa: Lippincott Williams & Wilkins; 2009:chap 27]

Meibomianitis

- Meibomianitis is inflammation of the meibomian glands, a group of oil-releasing (sebaceous) glands in the eyelids.

Causes

- Any condition that increases the oily secretions of the meibomian glands will allow excess oils to build up on the edges of the eyelids. This allows for the excess growth of bacteria that are normally present on the skin.
- These problems can be caused by allergies, hormone changes during adolescence, or skin conditions such as rosacea and acne.
- Meibomianitis is often associated with blepharitis, which can cause a buildup of a dandruff-like substance at the base of the eyelashes.
- In some people with meibomianitis, the glands will be plugged so that there is less oil being made for the normal tear film. These people often have symptoms of dry eye.

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1018. Blow out fracture of orbit leads to fracture in

a) Floor

b) Posterior Medial wall

c) Lateral wall

d) Roof of the orbit

Correct Answer - B
Ans:B
1. A blow out fracture of the orbital floor is typically caused by a sudden increase in orbital pressure by a striking object which is greater than 5 cm in diameter, greater than the orital sin diameter such as a fist or tennis ball.
2. The fracture most frequently involves the floor of the orbit along the thin bone covering the infra orbital canal.
3. The floor consists of three bones: Zygomatic, Maxillary and Palatine.
4. **The posteromedial portion of the maxillary bone is relatively weak and may be involved in a 'blowout' fracture.**
5. Fracture of the Roof of the orbit known as 'blow in' fractures.
6. Most medial wall orbital fractures are associated with floor fracture

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1019. Most common site of basal cell carcinoma of the eye is

a) Eyelid

b) Conjunctiva

c) Cornea

d) Lacrimal apparatus

Correct Answer - A

Ans. is 'a' i.e., Eyelid [Ref Renu Jogi 4th/e p. 420; Khurana 4th/e p. 360]

- Basal cell carcinoma is the commonest malignant tumor of the lids (90%) usually seen in elderly people.
- It is locally malignant and involves most commonly lower lid (50%) followed by media! canthus (25%), upper lid (10-15%) and outer canthus.
- "Basal cell carcinoma is seen in the lower lid near the inner canthus usually

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1020. Vitrectomy should be considered if the vitreous haemorrhage is not absorbed within:

a) 1 month

b) 3 months

c) 6 months

d) 2 months

Correct Answer - B
Ans. 3 months

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1021. Ankyloblepheron is defined as

a) Adhesion of the lid to the eyeballs

b) Adhesion of the lid margins to each other

c) Inturned eyelash

d) Inflammation of the lid margin

Correct Answer - B

Ans is 'b' i.e., Adhesion of the lid margins to each other [Ref: Kanski 8th Ie p. 52]

Disorders of the eyelids

- Blepharitis :- Chronic inflammation of lid margin.
- Blephritis acarica : Inflammation of lid margin caused by Demodex folliculorum. Madarosis :- Loss of eye lashes.
- Trichiasis :- Misdirected eyelashes which rub against the eyeball in normal position of lid margin. Distichiasis :- an abnormal extra row of cilia taking place of meibomian glands.
- Entropion :- Inward rolling or inturning of lid margin.
- Ectropion :- Out rolling or outward turning of lid margin.
- Symblepharon :- Adhesion of the lids to eyeball.
- Ankyloblepharon :- Adhesion of margins of two eyelids.
- Blepharophimosis Palpebral fissure appears to be contracted at the outer canthus. Lagophthalmos :- Incomplete closure of the palpebral aperture when eyes are shut. Tylosis :- Thickening of lid margin.
- Basal cell carcinoma :- Most common malignant tumor of eyelid
- Cloboma of lid :- Triangular gap in nasal side of upper lid

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1022. The globe is displaced to which side in lacrimal gland tumour?

a) Inferotemporal

b) Inferonasal

c) Superotemoral

d) Nasal

Correct Answer - B

Ans. is 'b' i.e., Inferonasal [Ref Bernardini FP, Devoto MH, Croxatto JO. Epithelial tumors of the lacrimal gland: an update. Curr Opin Ophthalmol 2008;19:409-13]

- All lacrimal gland tumors typically share the following symptoms: facial asymmetry due to displacement of the globe, diplopia, ptosis, limited ocular motility, and enlargement of the lacrimal gland.
- Epithelial lesions tend to develop mostly in the orbital lobe of the lacrimal gland and are principally unilateral.
- The initial sign is usually inferior and nasal displacement of the globe and proptosis, due to the superotemporal location of the lacrimal gland in the anterior aspect of the orbit.

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1023. 'D' shaped pupil is seen in

a) Glaucoma

b) Dislocation of lens

c) Iridodialysis

d) Iridocyclitis

Correct Answer - C

Ans. is 'c' i.e., Iridodialysis [Ref Khurana 4thie p. 404]

Iridodialysis is detachment of iris from its root at the ciliary body. It results in D shaped pupil and a lack biconvex area seen at the periphery.

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1024. Investigation of choice for optic neuritis is ?

a) MRI Brain and orbit

b) Ct scan Brain and orbit

c) Vitreous biopsy

d) Electooculogram

Correct Answer - A

Ans. is 'a' i.e., MRI Brain and orbit [Ref Kanski 8th/e Chap. 19, p. 784]

Magnetic Resonance Imaging (MRI) is far more superior for the study of soft tissue and thus, for most neuro-ophthalmic conditions, MRI is the investigation of choice.

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1025. Enophthalmos is seen in ?

a) Blow out fracture of orbit wall

b) Hyperthyroidism

c) Radiation Injuries

d) Diabetes mellitus

Correct Answer - A
Ans. is 'a' i.e., Blow out fracture of orbit wall
Enophthalmos is seen in blow out fracture of orbit wall.

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1026. Ocular findings in diabetes are all except -

a) Retinopathy

b) Early senile cataract

c) Neovascular glaucoma

d) Blepharophimosis

Correct Answer - D
Ans. is 'd' i.e., Blepharophimosis [Ref Kanski's 8`Ve chapter 13, p. 520]

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1027. Mucin layer tear flilm deficiency occurs in:

a) Keratoconjunctivitis sicca

b) Lacrimal gland removal

c) Canalicular block

d) Herpetic keratitis

Correct Answer - A
A i.e Keratoconjunctivitis sicca

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1028. Which of the following is a long term side effect of phakic 10Ls

a) Chronic glaucoma

b) Retinal detachment

c) Optic neuritis

d) None

Correct Answer - A

Ans. is 'a' i.e., Chronic glaucoma [Ref Chen LI, et al. Metaanalysis of cataract development after phakic intraocular lens surgery. J Cataract Refract Surg 2008;34:1181-200.]

Phakic intraocular lenses (pIOLs) are artificial lenses that are inserted either on top of the iris or in between the iris and the natural lens. They are used to treat refractive error without removing cornea tissue or the lens.

Long term risks of phakic IOLS

- Chronic intraocular pressure elevation can produce indolent vision damage from angle closure glaucoma.
- The surgical procedure itself also induces some endothelial cell damage and if the prosthetic is in close proximity to the cornea, chronic loss could be induced.
- Finally, chronic inflammation or prosthetic-lens touch can induce cataract formation

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1029. Most common protozoan causing keratitis is

a) Plasmodium

b) Acanthamoeba

c) Toxoplasma

d) W. bancrofti

Correct Answer - B

Ans. is `b' i.e., Acanthamoeba [Ref Kanski 8th/e p. 197]

"Acanthamoeba keratitis is the most common keratitis caused by a protozoan especially in contact lens users".

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1030. Smokers are prone to which lung infection

a) Mycobacterium tuberculosis

b) Pneumonia

c) Influenza

d) All the above

Correct Answer - D
Answer- D. All the above

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1031. Some patients with severe form of Idiopathic infantile hypercalcemia, presnt with phenotypic features similar to which of the following?

a) Williams syndrome

b) Potters syndrome

c) Angelman syndrome

d) VHL syndrome

Correct Answer - A

Answer- A. Williams syndrome

In the severe form, Prenatal and postnatal growth failure are common and number of phenotypic features of Williams syndrome are observed in some of the patients include cardiovascular abnormalities (usually supravalvular aortic stenois and peripheral pulmonic stenosis), late psychomotor development, selective mental deficiency, a characteristic unusual facies and short stature.

The serum calcium levels range between 12 - 19mg/ dL.

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1032. Which liver disease/s is/are associated with ductopenia?

a) Chronic graft rejection

b) Hepatic sarcoidosis

c) Paraneoplastic syndrome related to hodgkins lymphoma

d) All the above

Correct Answer - D
Answer- D. All the above
Loss of bile ducts from the portal tracts is referred to as ductopenia. Ductopenia is most commonly seen related to chronic allograft rejection and includes drug related injury, primary binary cirrhosis, primary sclerosing cholangitis, chronic graft-vs-host disease, hepatic sarcoidosis, paraneoplastic syndrome related to Hodgkin disease, and syndromic paucity of bile ducts (Alagille syndrome).

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1033. **1 to 2 mm haemorrhages in skin are known as:**

a) Micro bleed

b) Petechiae

c) Purpura

d) None of the above

Correct Answer - B

Minute 1- to 2-mm hemorrhages into skin, mucous membranes, or serosal surfaces are called **petechiae.**

These are most commonly associated with locally increased intravascular pressure, low platelet counts (thrombocytopenia), or defective platelet function (as in uremia).

Ref: Robbins 8th edition Chapter 4.

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1034. Which of the following is not true about metabolic syndrome?

a) It is also called Syndrome X

b) Acanthosis and signs of hyperandrogenism may be seen

c) Type A has autoantibodies against the insulin receptor

d) Insulin resistance increases the risk of type 2 DM in patients with PCOS

Correct Answer - C

Answer- C. Type A has autoantibodies against the insulin receptor

It is an insulin resistance condition which comprises a spectrum of disorders, with hyperglycemia representing one of the most readily diagnosed features.

The metabolic syndrome, the insulin resistance syndrome, or syndrome X are terms used to describe a constellation of metabolic derangements that includes insulin resistance, hypertension, dyslipidemia (decreased HDL and elevated triglycerides), central or visceral obesity, type 2 diabetes or IGT/IFG, and accelerated cardio-vascular disease.

Acanthosis nigricans and signs of hyperandrogenism (hirsutism, acne, and oligomenorrhea in women) are also common physical features.

Two distinct syndromes-

1. type A, which affects young women and is characterized by severe hyperinsulinemia, obesity, and features of hyperandrogenism; and type A insulin resistance syndrome have an undefined defect in the insulin-signaling pathway.
2. type B, which affects middle-aged women and is characterized by

severe hyperinsulinemia, features of hyperandrogenism, and autoimmune disorders.

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1035. Metabolic syndrome diagnosis in men based on NCEP ATP III criteria includes the following except

a) Abdominal obesity > 40 inches

b) HDL < 50 mg / dL

c) BP >/= 130/85 mm Hg

d) Fasting glucoe > 110 mg/ dL

Correct Answer - B

Answer- B. HDL < 50 mg / dL

Table 1. Diagnostic Criteria for Metabolic Syndrome[a]

Criterion	Definition
Abdominal obesity	Waist circumference: men, >40 in. (>102 cm); women, >35 in. (>88 cm)
Hypertriglyceridemia	≥150 mg/dL
Low HDL-C	Men, <40 mg/dL; women, <50 mg/dL
High blood pressure	≥130/85 mmHg
High fasting glucose	≥110 mg/dL

[a] Diagnosis based on presence of three of five factors.
Source: Reference 6.

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1036. Water hammer pulse seen in

a) >Aortic stenosis

b) >Aortic regurgitation

c) >Aortic stenosis and Aortic regurgitation

d) >Mitral regurgitation

Correct Answer - B

Aortic regurgitation *[Ref. Harrison 17^{h}/e p 1476 & 16^{6}/e p 1400 Kundu, bedside clinics in medicine]*

Water hammer pulse

- It is a *large bounding pulse,* associated with *increased stroke volume* of the left ventricle and *decrease* in the *peripheral resistance,* leading to a wide pulse pressure.
- The pulse strikes the palpating finger with a *rapid, forcefid jerk* and quickly disappears.
- It is best felt in the *radial artery* with the patients *arm elevated.*
- It is seen in *Aortic regurgitation.*

Pathophysiology of water hammer pulse

- In Aortic re^{g}urgitation the stroke volume is *high,* so the *systolic pressure is high* and this is responsible for sharp rise in the pulse.
- The stroke volume is high because the left ventricle gets blood from two sources during the diastole i.e. *blood leaking* from the *Aorta* and the blood it receives from left atria.
- *The collapse occurs because*
- *Diastolic leak of blood into the left ventricle from the Aorta*
- *Rapid run off to the periphery as a result of low systemic vascular resistance (the increased cardiac output stimulates the baroreceptors in the aortic arch and the result is reflex vasodilatation of the peripheral vessels into which the blood flows rapidly).*

Wiry are arms elevated in the examination ?

- When the arm is raised there is fall of blood column resulting *in* vasodilation and thus helps to reduce the diastolic pressure more, *so the pulse pressure widens.*
- It may be so that the artery palpated becomes more in the line of Aorta after elevation of the arm and thus allows the direct systolic ejection and diastolic backward flow.

1037. **FALSE statement regarding the ECG in acute pericarditis is:**

a) T wave inversion develop before ST elevations return to baseline

b) Global ST segment elevation is seen in early pericarditis

c) Sinus tachycardia is a common finding

d) PR segment depression is present in majority of patients

Correct Answer - A

T wave inversion develop after ST elevations return to baseline.

There are four stages of ECG changes in the evolution of acute pericarditis. In **stage 1,** there is widespread elevation of the ST segments, often with upward concavity, involving two or three standard limb leads and V2 to V6, with reciprocal depressions only in aVR and sometimes V1, as well as depression of the PR segment Usually there are no significant changes in QRS complexes. In **stage 2**, after several days, the ST segments return to normal, and only then, or even later, do the T waves become inverted (**stage 3**). Ultimately, weeks or months after the onset of acute pericarditis, the ECG returns to normal in **stage 4.**

Ref: Harrisons principles of internal medicine, 18th edition, Page: 1971

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1038. Ejection click of pulmonary stenosis is better heard in

a) Inspiration

b) Expiration

c) Patient bending forward

d) Patient lying in left lateral position

Correct Answer - B

Answer- B. Expiration

It emanates from a stenotic pulmonary valve or a dilated pulmonary artery.

Its most characteristic feature is to disappear or become markedly softer with inspiration i.e. it is better heard in expiration.

It is localized to 2nd and 3rd intercostal spaces.

They may also be present in patients with pulmonary hypertention or the ones with dilated pulmonary artery.

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1039. Reciprocal changes in ECG in patients with inferior wall myocardial infarction are seen in which leads

a) I

b) II

c) III

d) aVF

Correct Answer - A

Answer- A. I

Localization - Myocardial Infarct

Localization	ST elevation	Reciprocal ST depression	Coronary Artery
Anterior MI	V1-V6	None	LAD
Septal Mi	V1-V4, disappearance of septum Q in leads V5,V6	none	LAD
Lateral MI	I, aVL, V5, V6	II,III, aVF (inferior leads)	LCX
Inferior MI	II, III, aVF	I, aVL (lateral lead)	RCA (80%) or LCX (20%)
Posterior MI	V7, V8, V9	high R in V1-V3 with ST depression V1-V3 > 2mm (mirror view)	RCA or LCX
Right Ventricle MI	V1, V4R	I, aVL	RCA
Atrial MI	PTa in I,V5,V6	PTa in I,II, or III	RCA

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1040. All are features of aortic stenosis except

a) Congestive heart failure due to systolic or diastolic dysfunction

b) Presence of ejection systolic murmur

c) Presence of pulsus tardus

d) Pressure in the aorta is the same as in left ventricle

Correct Answer - D

Answer- D. Pressure in the aorta is the same as in left ventricle

Clinical Findings-

- Systolic ejection murmur
- Carotid pulsus parvus et tardus
- Diminished aortic component of 2nd heart sound
- Sudden death in severe stenosis after exercise

Classical triad-

- Angina
- Syncope
- Shortness of breath (heart failure)

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1041. Which of the following is not true about bicuspid aortic valve?

a) Usually undetected in early life

b) It is more common in females than in males

c) Post-stenotic dilatation of ascending aorta can be seen

d) Diagnosis is made by echocardiography

Correct Answer - B

Answer- B. It is more common in females than in males

The congenital bicuspid aortic valve, which may initially be functionally normal, is one of the most common congenital malformations of the heart and may go undetected in early life.

More frequent in males (3:1)

Diagnosis is made by echocardiography, which reveals the morphology of the aortic valve and aortic root and quantitates severity of stenosis or regurgitation.

The ascending aorta is often dilated, misnamed "poststenotic" dilatation; this is due to histologic abnormalities of the aortic media similar to those in Marfan's syndrome and may result in aortic dissection.

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1042. Which of the following hemodynamic changes is not evident in cardiac tamponade during diastole?

a) Right atrial and ventricular collapse

b) Absent y wave on JVP

c) Biphasic venous return

d) Elevated pericardial pressure

Correct Answer - C

Answer- C. Biphasic venous return

During the diastole the pericardial pressure remains elevated.

It is greater than the intracavitary pressure thus there is no filling during the diastole

The absence of venous return during the diastole leads to absence of "y" waves on the J.V.P. and the "diastolic collapse" of the right atria and ventricle.

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1043. Major criteria for infective endocarditis include which of the following

a) Injection drug user

b) Fever

c) Oslers nodes

d) Typical organism of infective endocarditis isolated from two separate blood cultures

Correct Answer - D

Answer- D. Typical organism of infective endocarditis isolated from two separate blood cultures

Diagnosis of infective endocarditis (modified Duke criteria)
Major criteria
• Positive blood culture: typical organism from two cultures; persistent positive blood cultures taken >12 hrs apart; three or more positive cultures taken over >1 hr • Endocardial involvement: positive echocardiographic findings of vegetations; new valvular regurgitation
Minor criteria
• Predisposing valvular or cardiac abnormality • IV drug misuse • Pyrexia ≥38°C • Embolic phenomenon • Vasculitic phenomenon • Blood cultures suggestive – organism grown but not achieving major criteria • Suggestive echocardiographic findings
Definite endocarditis: two major, or one major and three minor, or five minor **Possible endocarditis**: one major and one minor, or three minor

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1044. Which of the following ECG features are not seen in patients with ventricular tachycardias?

a) Bizzare QRS complexes

b) Presence of AV dissociation [fusion beats]

c) Prolonged duration of QRS complexes

d) P pulmonale

Correct Answer - D
Answer- D. P pulmonale
AV dissociation (atrial capture, fusion beats)
QRS duration > 140 ms for RBBB type V1 morphology, VI > 160 ms for LBBB type VI morphology
Frontal plane axis - 900 to 1800
Delayed activation during initial phase of the QRS complex
LBBB pattern - R wave in V1, V, > 40 ms
RBBB pattern - onset of R wave to nadir of S > 100 ms
Bizarre QRS pattern that does not mimic typical RBBB or LBBB QRS complex.
Concordance of QRS complex in all precordial leads
RS or dominant S in V6 for RBBB VT Q wave in V6 with LBBB QRS pattern
Monophasic R or biphasic qR of R/S in V, with RBBB pattern

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1045. Cerebro-occulo-genital syndrome has the following features except

a) Microcephaly

b) Short stature

c) Agenesis of corpus callosum

d) Flaccid quadriplegia

Correct Answer - D
Answer- D. Flaccid quadriplegia
Cerebro-occulo-genital syndrome is associated with microcephaly, short stature, microophthalmia, agenesis of corpus callosum, hypospadias and spastic quadriplegia.

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1046. Pulsus biseferians, which of the following is not true

a) It is seen in aortic regurgitation

b) It is better felt in peripheral arteries

c) It has one peak in systole and one in diastole

d) It has two peaks

Correct Answer - C

Answer- C. It has one peak in systole and one in diastole

It is characterized by two systolic peaks.

It is seen in patients of aortic regurgitation.

The pulse wave upstroke rises rapidly and forcefully producing the first systolic peak (percussion wave). A brief decline in pressure is followed by a smaller and somewhat slower rising positive pulse wave.

In bisiferians pulse the second rise in systole is enhanced by reflection from peripheral arteries therefore it is more prominent in peripheral pulse.

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1047. The most common reentrant tachycardia associated with WPW syndrome is

a) Orthodromic AV reentry

b) Antidromic AV reentry

c) Rapidly conducting AF

d) None

Correct Answer - A
Answer is A (Orthodromic AV reentry)
123.The most common macro-reentrant tachycardia associated WPW syndrome is orthodromic AV reentry.
The most common macro-reentrant tachycardia associated with WPW syndrome is referred to as Orthodromic AV reentry'

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1048. Square wave seen in ECG recording denote

a) Atrial depolarization

b) Ventricular depolarization

c) Ventricular repolarization

d) Standardization of ECG

Correct Answer - D

Answer- D. Standardization of ECG

Each ECG machine has a provision for Standardization (STD) of Calibration (CAL).

The standardization lever releases a current of 1 mV to the stylus of ECG machine that records a shift of 10 mm on the ECG paper.

The standardization current gives rise to a wave pattern called square wave pattern as depicted in the image below.

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1049. Which of the following is not true about Torsades de pointes?

a) Presence of prolonged QT interval on ECG

b) Presence of polymorphic QRS complexes

c) It is a type of supraventricular tachycardia

d) QRS complexes appear to rotate around the isoelectric baseline of ECG

Correct Answer - C

Answer- C. It is a type of supraventricular tachycardia

The significance of the long QT syndrome is its association with the development of a specific type of ventricular tachycardia called Torsades de points or polymorphic ventricular tachycardia

A wide complex tachyarrythmia with QRS complexes of varying axis and morphology that appear to rotate around the iso electric baseline.

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1050. Prolonged QT interval is seen in all of the following except

a) Hypokalemia

b) Hypocalcemia

c) Use of macrolide antibiotitcs

d) Hypernatremia

Correct Answer - D
Answer- D. Hypernatremia
Metabolic

- Hypokalemia
- Hypocalcemia
- Hypomagnesemia

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1051. Following are the clinical signs of widened pulse pressure seen in patients of aortic regurgitation except

a) Corrigans sign

b) De Mussets sign

c) Water Hammer pulse

d) Diastolic murmur

Correct Answer - D
Answer- D. Diastolic murmur
Corrigan's pulse: A rapid and forceful distension of the arterial pulse with a quick collapse
De Musset's sign: Bobbing of the head with each heartbeat (like a bird walking)
Muller's sign: Visible pulsations of the uvula
Quincke's sign: Capillary pulsations seen on light compression of the nail bed
Traube's sign: Systolic and diastolic sounds heard over the femoral artery ("pistol shots")
Duroziez's sign: Gradual pressure over the femoral artery leads to a systolic and diastolic bruit
Hill's sign: Popliteal systolic blood pressure exceeding brachial systolic blood pressure by ≥ 60 mmHg (most sensitive sign for aortic regurgitation)
Water hammer pulse

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1052. All of the following are characteristic features of Tricuspid Atresia except -

a) Left Axis deviation

b) Right ventricular hypoplasia

c) Pulmonary vascularity is diminished

d) Splitting of S_2

Correct Answer - D

Ans. is 'd' i.e., Spliting of S_2

Atresia of the tricuspid valve results in the absence of a communication between the right atrium and right ventricle therefore the right ventricle is underdeveloped the inflow portion being absent. The only exit for systemic venous blood coming to the right atrium is by way ofAtrial *Septa! defect.* Through this the blood goes to left atrium from where it enters left ventricle.

A *ventricular septal defect* provides communication between the left ventricle and the outflow portion of the right ventricle. The *left ventricle therefore maintain both the systemic as well as the pulmonary circulation* thus there is hypertrophy of the left ventricle which is reflected by *left axis deviation in ECG.*

The pulmonary blood flow *is dependent on the size of the ventricular defect,* the smaller the VSD, the lesser the pulmonary blood flow. *90% patients of Triscuspid Atresia have diminished pulmonary blood flow. o* Auscultatory finding in case of Tricuspid Atresia

S_1 -Normal S_2 - Single Murmur grade II to grade III / VI

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1053. Episode of stable angina pectoris typically lasts for

a) Less than 1 min

b) 2 - 5 mins

c) 5 - 10 mins

d) > 10 mins

Correct Answer - B

Answer- B. 2 - 5 mins

Angina is usually crescendo- decrescendo in nature, typically lasts 2 to 5 min, and can radiate to either shoulder and to both arms (especially the ulnar surfaces of the forearm and hand).

It also can arise in or radiate to the back, interscapular region, root of the neck, jaw, teeth, and epigastrium. Angina is rarely localized below the umbilicus or above the mandible.

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1054. Levine sign is seen in

a) Stable angina pectoris

b) Acute bronchial asthma

c) Hemolytic anemia

d) Gastroesophageal reflux disease

Correct Answer - A

Answer- A. Stable angina pectoris

Stable Angina Pectoris:

- This episodic clinical syndrome is due to transient myocardial ischemia
- When the patient is asked to localize the sensation, he or she typically places a hand over the sternum, sometimes with a clenched fist, to indicate a squeezing, central, substernal discomfort (Levine's sign).

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1055. Not True about Prinzmetal's angina:

a) May present at rest

b) Occurs due atherosclerotic obstruction of coronary arteries

c) Smoking is a risk factor

d) Nitrates are used for treatment

Correct Answer - B

Answer- B. Occurs due atherosclerotic obstruction of coronary arteries

This syndrome is due to focal spasm of an epicardial coronAry artery, leading to severe myocardial ischemia leading to severe myocardial ischemia.

The right coronary artery is the most frequent site, followed by the left anterior descending coronary artery.

Acetylcholine released by the parasympathetic system at rest will simply cause contraction of the vascular smooth muscle.

It usually occurs at rest and is associated with transient ST- segment elevation.

Etiology

cigarette smokers

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1056. The most common toxin causing Dilated Cardiomyopathy is:

a) Alcohol

b) Chemotherapeutic agents

c) Heavy metal

d) Occupational exposure

Correct Answer - A

Answer is A (Alcohol)

Chronic Alcohol Consumption is the most common cause of Toxic Dilated Cardiomyopathy. Alcohol is the most common toxin implicated in chronic dilated cardiomyopathy'

Note :

Dilated cardiomyopathy is the most common type of cardiomyopathy The most common cause of dilated cardiomyopathy is Idiopathic (Two-Thirds) Alcohol Consumption is the most common cause of Toxic Dilated Cardiomyopathy

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1057. Obstructive shock can be seen in

a) Pulmonary embolism

b) Tension pneumothorax

c) Pericardial tamponade

d) All the above

Correct Answer - D
Answer- D. All the above
Causes in trauma patients include pulmonary embolism, pericardial tamponade, acute coronary syndromes, increased intrathoracic pressure as in tension pneumothorax, positive pressure ventilation and excessive PEEP.

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1058. Pharmacological stress during stress myocardial radionucleotide perfusion imaging can be induced using

a) Dipyridamole

b) Adenosine

c) Dobutamine

d) All the above

Correct Answer - D

Answer- D. All the above

Dipyridamole or adenosine can be given to create a coronary "steal" by temporarily increasing flow in nondiseased segments of the coronary vasculature at the expense of diseased segments. Alternatively, a graded incremental infusion of dobutamine may be administered to increase MVO2.

The development of a transient perfusion defect with a tracer such as thallium-201 or 99m-technetium sestamibi is used to detect myocardial ischemia.

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1059. While treating patients with malignant hypertention the maximum allowed decrease in blood pressure in the first 2 - 6 hours should not exceed %

a) 15

b) 20

c) 25

d) 30

Correct Answer - C
Answer- C. 25
Hypertension with systolic BP 180 mmHg and diastolic BP 120 mm Hg is classified as "severe hypertension".
Severe hypertension (180/120) does not necessarily mean hypertensive emergency or malignant hypertension. ? Patients with B.P. 180 / 120 may remain asymptomatic without causing any complications.
The initial aim of treatment in malignant hypertension and hypertensive encephalopathy is to lower diastolic blood pressure to about 100 to 105 mm Hg within minutes to, two- six hours with the maximum fall in B.P. over this period of time not exceeding 25% of the original value.

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1060. ECG pattern seen in pulmonary embolism is:
September 2009, March 2013

a) S3Q3T1

b) S1Q1T3

c) S1Q3T3

d) S3Q3T3.

Correct Answer - C
Ans. C: S1Q3T3

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1061. Contraindication for percutaneous ballon mitral valvotomy include the following except

a) Presence of pulmonary hypertension

b) Left atrial thrombus

c) Severe mitral regurgitation

d) Commissural calcification

Correct Answer - A

Answer- A. Presence of pulmonary hypertension

Patients with valvular calcification, thickened fibrotic leaflets with decreased mobility and subvalvular fusion, have incidence of acute complications and higher rate of restenosis on followup. Such patients are considered a contraindication for the procedure. Other contraind ications include more than moderate mitral regurgitation, presence of left atrial thrombi, and commissural calcification.

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1062. Mitral valve replacement is recommended in patients with

a) Moderate MS in NYHA class II

b) Moderate MS in NYHA class III

c) Severe MS in NYHA class II

d) Severe MS in NYHA class III

Correct Answer - D

Answer- D. Severe MS in NYHA class III

Since there are also long-term complications of valve replacement, patients in whom preoperative evaluation suggests the possibility that MVR may be required should be operated on only if they have severe MS—i.e., an orifice area "1 cm2—and are in NYHA Class III, i.e., symptomatic with ordinary activity despite optimal medical therapy".

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1063. HOCM is common in which age group?

a) 10 - 30 years

b) 20 - 40 years

c) 30 - 50 years

d) 40 - 60 years

Correct Answer - B
Answer- B. 20 - 40 years
Hypertrophic cardiomyopathy is characterized by marked left ventricular hypertrophy in the absence of other causes, such as hyper- tension or valve disease.
Earlier termed hypertrophic obstructive cardiomyopathy (HOCM)
Hypertrophic cardiomyopathy is characterized hemodynamically by diastolic dysfunction, originally attributed to the hyper¬trophy, fibrosis, and intraventricular gradient when present.
Hypertrophic cardiomyopathy usually presents between the ages of 20 and 40 years. Dyspnea on exertion is the most common presenting symptom, reflecting elevated intracardiac filling pressures

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1064. Preferred vein for central venous catheter insertion is

a) Right internal jugular vein

b) Left internal jugular vein

c) Right subclavian vein

d) Right antecubital vein

Correct Answer - A

Answer- A. Right internal jugular vein

- Placement of the central venous catheter is indicated for the monitoring of the central venous pressure and for prolonged drug administration for parenteral nutrition.
- The preferred site for insertion of catheter into the superior venacava is from internal jugular vein of the neck. Other used sites are from the subclavian vein or from the peripheral vein in the antecubital fossa.

Commonly used vein cannulation sites for central venous access include:

- Jugular vein
- External jugular vein
- Internal jugular vein (central, posterior, anterior approaches)
- Subclavian vein (supraclavicular, infraclavicular, axillary approaches)
- Femoral vein
- Basilic vein

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1065. Kerley B lines seen in mitral stenosis when the resting left atrial pressure exceeds

a) 10 mm Hg

b) 20 mm Hg

c) 30 mm Hg

d) 40 mm Hg

Correct Answer - B

Answer- B. 20 mm Hg

Kerley B lines are fine, dense, opaque, horizontal lines that are most prominent in the lower and mid-lung fields and that result from distention of interlobular septae and lymphatics with edema when the resting mean LA pressure exceeds approximately 20 mmHg.

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1066. Which of the following is the most common anamoly in patients with fanconi's anemia?

a) Hyperpigmentation of the trunk, neck and intertriginous areas

b) Absent radii and thumb

c) Weak radial pulse

d) Presence of horse shoe kidneys

Correct Answer - A

Answer- A. Hyperpigmentation of the trunk, neck and intertriginous areas

Fanconi anemia (FA) is primarily inherited in an autosomal recessive manner (one uncommon form is X-linked recessive).

The most common anomaly in FA is hyperpigmentation of the trunk, neck, and intertriginous areas, as well as café-au-lait spots and vitiligo, alone or in combination.

Anomalies of the feet, congenital hip dislocation, and leg abnormalities are seen.

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1067. Patients with which of the following conditions are at greatest risk of pernio

a) Raynaud's phenomenon

b) Kawasaki disease

c) Henoch Schonlen purpura

d) Hepatitis C infection

Correct Answer - A
Answer- A. Raynaud's phenomenon
The two most common nonfreezing peripheral cold injuries are chilblain (pernio) and immersion (trench) foot.
Chilblain results from neuronal and endothelial damage induced by repetitive exposure to dry cold.
Young females, particularly those with a history of Raynaud's phenomenon, are at greatest risk of pernio (chilblain).
Persistent vasospasticity and vasculitis can cause erythema, mild edema, and pruritus. Eventually plaques, blue nodules, and ulcerations develop

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1068. FEVI/FVC is decrease in:

a) Asthma

b) Kyphosis

c) Scoliosis

d) Fibrosis

Correct Answer - A

Answer is A (Asthma):

Decreased FEV1/FVC suggests a diagnosis of Obstructive Lung Disease.

Amongst the options provided Asthma is the only condition that leads to Obstructive Pattern of Lung Disease and hence is the answer of choice Kyphosis, Scoliosis and Fibrosis are Restrictive Lung Diseases that are characterized by Normal or Elevated FEVI/FVC ratios.

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1069. What is Tiffeneau - Pinelli index?

a) FEV1/FVC ratio

b) Body mass index

c) Quetlet index

d) Ventilation/Perfusion ratio

Correct Answer - A
Answer- A. FEV1/FVC ratio

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1070. Lights criteria is used for

a) Pleural effusions

b) Pericardial effusions

c) Ascites

d) Increased intracranial tension

Correct Answer - A

Answer- A. Pleural effusions

Light's critena for classification of unilateral pleural effusion

- The pleural fluid is an exudate if one or more of the following citeria are met.
- Pleural fluid protein divided by serum protein >0.5
- Pleural fluid lacato dehyoctogenase LDH divided by serum LDH > 0.6

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1071. Common cause of death in a patient with chronic bronchieactasis is

a) Right sided heart fail

b) Infection

c) Hemoptysis

d) Carcinoma

Correct Answer - A

Answer- A. Right sided heart fail

In todays world, right sided heart failure in patients with diffuse long standing bronchieactasis is a common cause of death in patients with chronic bronchieactasis.

Pneumonia and hemorrhage are less common causes of death.

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1072. Leutriene inhibitors are used in asthma for

a) Monotherapy for acute attack

b) Add-on therapy in patients not controlled by low dose inhaled glucocorticoids

c) Status asthmaticus

d) None of the above

Correct Answer - B

Answer- B. Add-on therapy in patients not controlled by low dose inhaled glucocorticoids

Cysteinyl-leukotrienes are potent bronchoconstrictors, cause microvascular leakage, and increase eosinophilic inflammation through the activation of cys-LT1-receptors.

Lukotriene inhibitors such as montelukast and zafirlukast, block cys-LT 1-receptors and provide modest clinical benefit in asthma.

They are less effective than inhaled corticosteroids in controlling asthma and have less effect on airway inflammation, but are useful as an add-on therapy in some patients not controlled with low doses of inhaled corticosteroids.

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1073. Apnea hypoapnea index indicating obstructive sleep apnea is -

a) <1

b) 2 - 5

c) 5 - 8

d) >8

Correct Answer - A

Answer- A. <1

Normal preschool and school-age children generally have a total AHI of less than 1.5 (obstructive AHI <1), and this is the most widely used cutoff value for Obstructive Sleep Apnea in children 12 yr and below; in older adolescents, the adult cutoff of an AHI 5 is generally used.

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1074. Multiple episodes of acute chest syndrome are associated with

a) Asthma

b) Bronchieactasis

c) SLE

d) Sjogrens syndrome

Correct Answer - A

Answer- A. Asthma

Patient presents with recurrent episodes of acute chest syndrome. The characteristic symptoms during an episode of asthma are wheezing, dyspnea, and coughing, which are variable, both spontaneously and with therapy.

Prodromal symptoms may precede an attack, with itching under the chin, discomfort between the scapulae, or inexplicable fear (impending doom).

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1075. Triad of skin lesions, mononeuritis multiplex, eosinophils seen in

a) Alports syndrome

b) Churg - Strauss syndrome

c) Cryoglobulinemia

d) Wegeners granulomatosus

Correct Answer - C
Answer- C. Cryoglobulinemia
Churg & Strauss is characterized by asthma, eosinophilla, extravascular granuloma formation, vasculitis.
Clinical Features-Fever, malaise, anorexia, weight loss.
Mononeuritis multiplex is the second most common features.
Allergic rhinitis and sinusitis.
Asthma
Peripheral and tissue eosinophillia, extravascular necrotizing granuloma.

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1076. Chronic bronchitis is said to be present when patient has chronic cough

a) 3 consecutive months in at least two consecutive years

b) 2 consecutive months for 3 consecutive years

c) 3 consecutive months in one year

d) 1 month in a year for 2 consecutive years

Correct Answer - A

Answer-A. 3 consecutive months in at least 2 consecutive years.

Cigarette smoking is the most important risk factor; air pollutants also contribute.

The dominant pathologic features are mucus hypersecre- tion and persistent inflammation.

Histologic examination demonstrates enlargement of mucous-secreting glands, goblet cell hyperplasia, chronic inflammation, and bronchiolar wall fibrosis.

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1077. Brocks syndrome is due to which lobe of lung?

a) Right middle lobe

b) Right lower lobe

c) Left upper lobe

d) Left lower lobe

Correct Answer - A

Answer- A. Right middle lobe

Brocks syndrome is due to collapse of right middle lobe of lung. It is seen as an acute complication of pulmonary tuberculosis. It occurs secondary to hilar node involvement.

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1078. Presence of Velcro crackles at the lung base on auscultation is a sign of

a) Scleroderma

b) Systemic Lupus

c) Wegeners Granulomatosus

d) Polyarteritisnodosa

Correct Answer - A

Answer- A. Scleroderma

CLINICAL FEATURES-

- Skin- sclerodactyly, Ranaud's phenomenon, calcinosis, telangiectasia, skin thickening. (inadvance stage fingers become claw like & face mask like)
- Musculoskeletal features- Arthralgia, flexor tenosynovitis
- GIT- oesophagitis, dysphagia, malabsorption
- Cardiorespiratory features- pulmonary fibrosis, pulmonary hypertension
- Renal features- hypertensive renal crisis
- Malignant hypertension
- Physical examination may reveal "Velcro" crackles at the lung bases.

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1079. Feature of Acute severe Asthma include all of the following, Except:

a) Tachycardia > 120/min

b) Pulsus paradoxus

c) Respiratory acidosis

d) Drowsy

Correct Answer - A

Answer is A. Tachycardia > 120/min

- Diaphoresis
- Bradycardia
- Paradoxical throcobadominal movements
- PEER < 33%
- Hypotension
- Pulsus paradoxus
- Hypercapnea
- Silent chest

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1080. Type IV respiratory failure occurs due to

a) Alveolar flooding

b) Inability to eliminate CO2

c) Lung atelactasis

d) Hypoperfusion of respiratory muscles

Correct Answer - D
Answer- d. Hypoperfusion of respiratory muscles
Type IV Respiratory Failure: results from hypoperfusion of respiratory muscles in patients in shock.
Commonly caused by cardiogenic shock, septic shock and hypovolemic shock.

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1081. Type 3 respiratory failure occurs due to ?

a) Post-operative atelectasis

b) Kyphoscoliosis

c) Flail chest

d) Pulmonary fibrosis

Correct Answer - A
Ans. is 'a' i.e., Post-operative atelectasis

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1082. Tool/s which objectively asses the risk of adverse outcomes in a patient with pneumonia is/are

a) Pneumonia severity index [PSI]

b) CURB - 65 criteria

c) Apachee Score

d) Glasgow scale

Correct Answer - A:B

Answer- (A) Pneumonia severity index [PSI] (B) CURB - 65 criteria

Tools that objectively assess the risk of adverse outcomes are the Pneumonia Severity Index (PSI), a prognostic model used to identify patients at low risk of dying; and the CURB-65 criteria, a severity-of-illness score.

The CURB-65 criteria include five variables: confusion (C); urea >7 mmol/L (U); respiratory rate 30/min (R); blood pressure, systolic "90 mmHg or diastolic" 60 mmHg (B); and age 65 years (65).

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1083. Empyema necessitans is defined as so when ?

a) Plural empyema is under pressure

b) Pleural empyema has ruptured into bronchus

c) Pleural empyema has ruptured into the pericardium

d) Pleural empyema is showing extension to the subcutaneous tissue

Correct Answer - D
Ans. is 'd' i.e., Pleural empyema is showing extension to the subcutaneous tissue

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1084. In ICU setting patients suffering from which respiratory pathology are at risk of CO2 narcosis?

a) Pneumonia

b) Asthma

c) Emphysema

d) Bronchieactasis

Correct Answer - C
Answer- C. Emphysema
Hypoventilation syndrome occurs most frequently in patients with a history of chronic CO, retention who are receiving oxygen therapy for emphysema or chronic pulmonary disease.
The elevated Paco, leading to CO, narcosis may have a direct anesthetic effect, and cerebral vasodilation from increased Paco, can lead to increased ICP

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1085. Inspiratory squeaks are the physical examination finding of

a) Bronchiolitis

b) Pulmonary hypertension

c) Pneumonia

d) Pulmonary edema

Correct Answer - A
Answer- A. Bronchiolitis
ILD associated with inflammation but are less likely to be heard in the granulomatous lung diseases.
Crackles may be present in the absence of radiographic abnormalities on the chest radiograph.
Scattered late inspiratory high-pitched rhonchi—so-called inspiratory squeaks—are heard in patients with bronchiolitis.
Cyanosis and clubbing of the digits occur in some patients with advanced disease.

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1086. Which of the following are the clinical abnormalities of uremia?

a) Hyperphosphatemia

b) Uremic frost

c) Peptic ulcer

d) All the above

Correct Answer - D
Answer- D. All the above
Volume expasion (I)
Hyperkalemia (I)
Hyponatremia (1)
Hyperphosphatemia (I)

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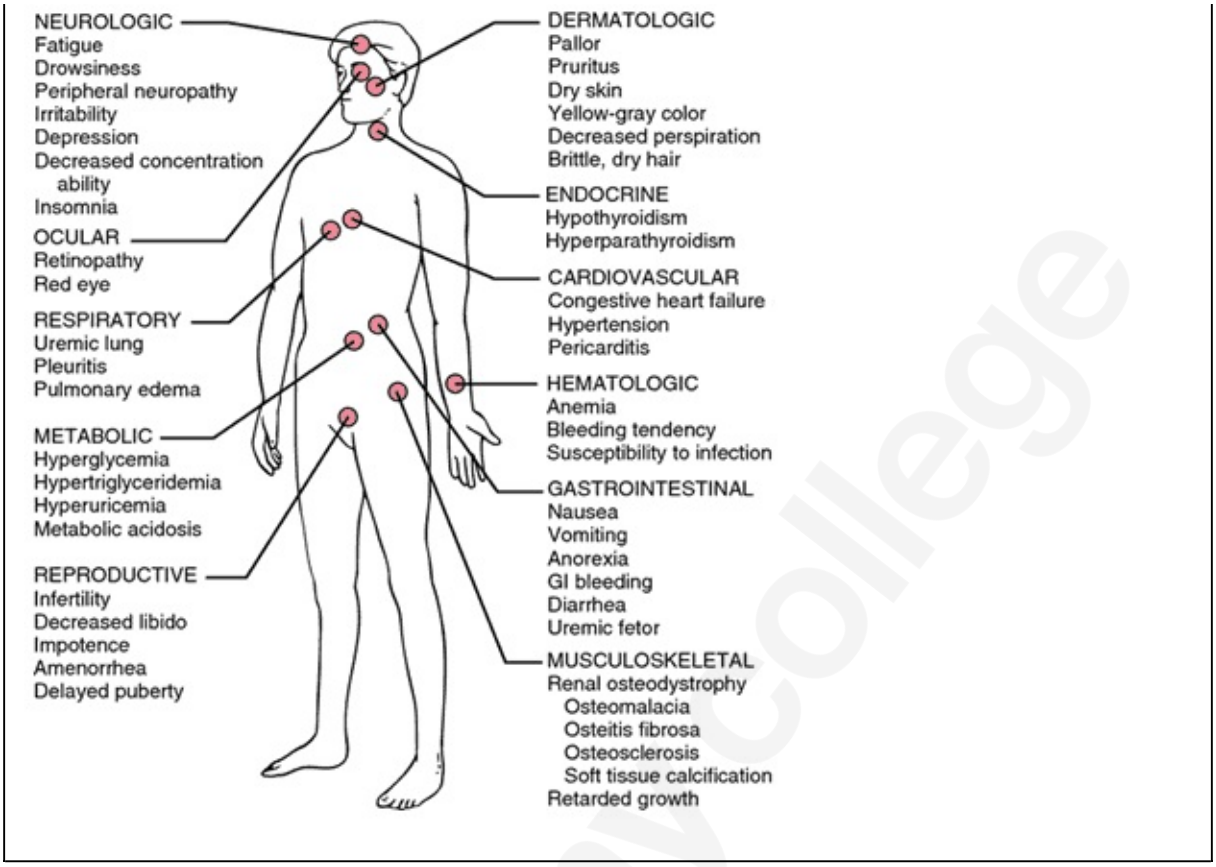

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1087. Which type of Bartter's syndrome is associated with mutations in barttin?

a) Type 1

b) Type 2

c) Type 3

d) Type 4

Correct Answer - D
Answer- D. Type 4
Bartter's syndrome may result from mutations affecting any of five ion transport proteins in the TAL.
The proteins affected include the apical loop diuretic-sensitive sodium-potassium-chloride co-transporter NKCC2 (type 1), the apical potassium channel ROMK (type 2), and the basolateral chloride channel C1C-Kb (type 3).
Bartter's type 4 results from mutations in barttin, an essential subunit of CIC-Ka and C1C-Kb that enables transport of the chloride channels to the cell surface. Barttin is also expressed in the inner ear; this accounts for the deafness invariably associated with Bartter's type 4.

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1088. Test used for screening for urinary tract infection is

a) Nitrite test

b) Na nitropruss ide test

c) Paul Bunnel test

d) Fentons test

Correct Answer - A
Answer- A. Nitrite Test
Effective and rapid method used for screening urine for the presence of bacterial infection.
Test is based on the fact that most bacteria present in the urine, have the capacity to reduce urine nitrate to nitrite.

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1089. Patient with nephrotic syndrome has decreased amount of which antibody

a) IgG

b) IgE

c) IgM

d) IgA

Correct Answer - A
Answer- A. IgG
The immunological abnormalities noted are very peculiar
IgG antibody is decrease
IgE and IgM antibody increase
Reduced responses to PHA and Con A (Concanavalin A)
Increase of beta microglobulinlevels
Reduced production of IL 2
Increased production of vascular permeability and immunosuppressor factors by CD4 T cells and CD 8 T cells respectively.

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1090. RIFLE criteria is used for diagnosis of

a) Acute kidney injury

b) Acute splenic injury

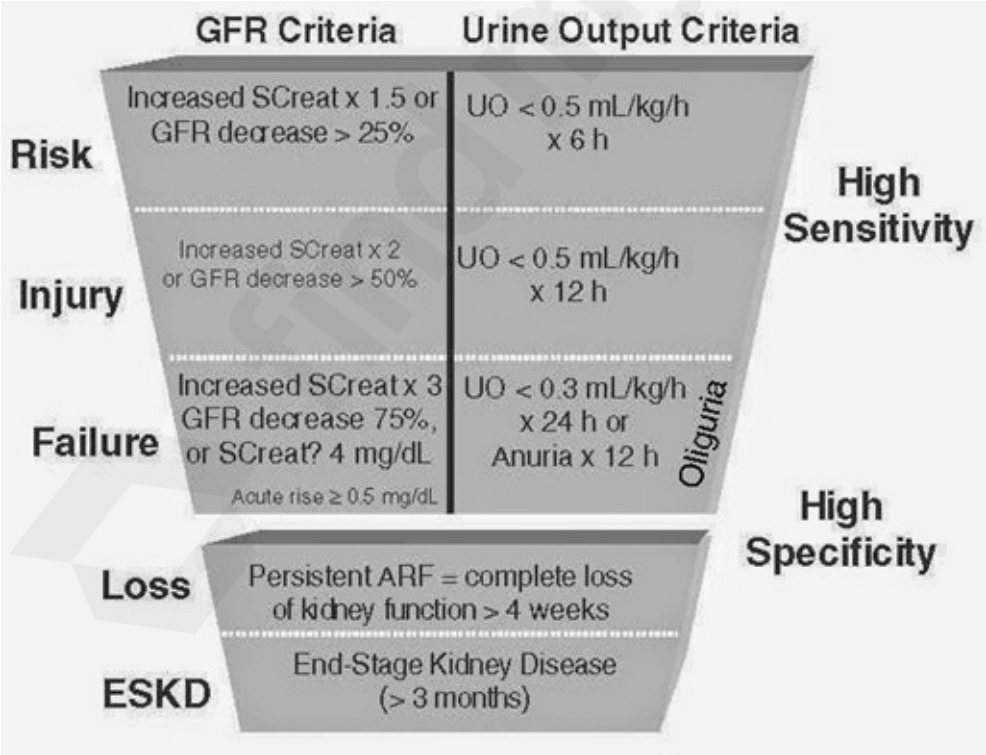
c) Acute liver injury

d) Acute bowel injury

Correct Answer - A

Answer- A. Acute kidney injury

The RIFLE criteria, defines threes increasing levels of severity of acute kidney injury on the basis of the increase in serum creatinine concentration or decrease in urine output.



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1091. What is oliguria -

a) Excretion of less than 300m1 in 24 hrs

b) Excretion of less than 500m1 in 24 hrs

c) Excretion of less than 300 ml. in 12 hrs

d) Excretion of less than 100 ml. in 24 hrs

Correct Answer - B
Ans. is 'b' i.e., Excretion of less than 500 ml in 24 hrs
(Note that Bailey & Love 25/e p1279 (24/e p 1300 & 23/e p 1168) write Oliguria to be less than 300 ml in 24 hrs, but we would follow Harrison & CMDT; Note that Smith's Urology 17/e p531 (16/e, p538) write it to < 400 ml/day!! what an utter confusion.)

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1092. Hemodynamically important lesions of renal artery stenosis are predicted by renal artery velocities more than on Doppler ultrasound.

a) 100 cm/s

b) 125 cm/s

c) 150 cm/s

d) 200 cm/s

Correct Answer - D

Answer- D. 200 cm/s

Renal artery velocities by Doppler ultrasound above 200 cm/s generally predict hemodynamically important lesions (above 60% vessel lumen occlusion), although treatment trials require velocity above 300 cm/s to avoid false positives.

Renal resistive index has predictive value regarding the viability of the kidney. It remains operator- and institution- dependent.

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1093. Gitelman's syndrome resembles the effects of which of the following drugs?

a) Thiazide

b) Furosemide

c) Spironolactone

d) Amiloride

Correct Answer - A
Answer- A. Thiazide
Gitelman's syndrome is due to mutations in the thiazide-sensitive Na-Cl co-transporter, NCCT, in the distal convoluted tubule (DCT). Defects in NCCT in Gitelman's syndrome impair sodium and chloride reabsorption in the DCT and thus resemble the effects of thiazide diuretics. It remains unclear how this defect leads to severe magnesium wasting.

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1094. **Autosomal recessive polycystic kidney disease is characterised by the altered expression of:**

a) Polycystin

b) Nephrocystin

c) Uromodulin

d) Fibrocystin

Correct Answer - D

Fibrocystin (polyductin) gene mutation is seen in autosomal recessive polycystic kidney disease.

Note:

- **Polycystin mutation** is associated with autosomal dominant polycystic kidney disease.
- **Nephrocystin** is related to nephronophthisis.
- **Uromodulin mutation** is seen in medullary cystic kidney disease.

Ref: Harrisons principles of internal medicine, 18th edition, Page: 2356.

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1095. Definition of complicated urinary tract infection is, the infection which fail to resolve or recur within week/s of standard therapy.

a) 1 week

b) 2 weeks

c) 3 weeks

d) 4 weeks

Correct Answer - B
Answer- B. 2 weeks
Complicated urinary tract infections refers to the infections that fail to resolve or recur within 2 weeks of standard therapy.
These are associated with bacteremia or sepsis and are assocated with periurethral abscess, obstructions and pyelonephritis

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1096. A patient presents with blunt trauma to abdomen. On investigations patient is found to have hepatic injury which has a ruptured subcapsular hematoma with active bleeding. What is the grade of liver injury?

a) Grade I

b) Grade II

c) Grade III

d) Grade IV

Correct Answer - C

Answer- C. Grade III

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CHART 1 - Grade of lesions and injury desccription

	Grade	Injury Description
I.	Hematoma	Subcapsular, nonexpanding, < 10cm surface area
	Laceration	Capsular tear, nonbleeding, < 1cm parenchymal bleeding
II.	Hematoma	Subcapsular, nonexpanding, 10 to 50% surface area Intraparenchymal nonexpanding < 10cm in diameter
	Laceration	Capsular tear, active bleeding; 1-3cm parenchymal depth < 10cm in length
III.	Hematoma	Subcapsular, > 50% surface area or expanding; Ruptured subcapsular hematoma with active bleeding; Intraparenchymal hematoma > 10cm or expanding
	Laceration	> 3cm parenchymal depth
IV.	Hematoma	Ruptured intraparenchymal hematoma with active bleeding
	Laceration	Parenchymal disruption involving 25% to 75% of hepatic lobe
V.	Laceration	Parenchymal disruption involving > 75% of hepatic lobe
	Vascular	Justahepatic venous injury (i.e., retrohepatic vena cava)
VI.	Vascular	Vascular avulsion

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1097. Excellent predictor of mortality and morbidity in patients after hepatectomy is

a) Serum lactate levels

b) Serum magnesium level

c) Serum iron level

d) Serum copper level

Correct Answer - A

Answer- A. Serum lactate levels

Hyperlactemia and hypophosphatemia are common derangements in patients undergoing liver resection.

Gluconeogenesis carried out by the liver normally consumes 40-60% of lactate.

When the liver is damaged, stressed or resected, it produces lactate rather than metabolizing it.

Due to the additive effects of lactate-containing intravenous solution, non-lactate containing solutions are recommended for postoperative use after hepatectomy.

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1098. Portal hypertension is said to be present if portal venous pressure is more than:
March 2010

a) 3-5 mm Hg

b) 5-8 mm Hg

c) 10-12 mm Hg

d) 15-20 mm Hg

Correct Answer - C
Ans. C: 10-12 mm Hg
Normal portal pressure is generally defined between 5 and 10 mm Hg.
Portal hypertension results when the portal pressure rises to 12 *mm* Hg or greater and complications can arise, such as varices and ascites.
Many conditions are associated with portal hypertension, of which cirrhosis is the most common cause

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1099. All of the following drugs may be used in the treatment of ulcerative colitis Except:

a) Corticosteroids

b) Azathioprine

c) Sulfasalazine

d) Methotrexate

Correct Answer - D

Answer is D (Methotrexate)

Methotrexate has not been shown to be effective fbr treating active ulcerative colitis or for maintaining remission.

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1100. Ascitic fluid SAAG < 1.1 what is the disease associated with

a) Hepatic failure

b) Idiopathic portal fibrosis

c) Constrictive pericarditis

d) Peritoneal carcinomatosis

Correct Answer - D
Answer- D. Peritoneal carcinomatosis
Low albumin gradient (SAAG <1.1 g/dL)

- Peritoneal carcinomatosis
- Peritoneal tuberculosis
- Pancreatitis
- Serositis
- Nephrotic syndrome

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1101. Specific antibody associated with primary biliary cirrhosis is:

a) Anti-myosin

b) Anti-nuclear

c) Anti-mitochondrial

d) Anti-endomysial

Correct Answer - C

Ans. C: Anti-mitochondrial

Primary biliary cirrhosis is strongly associated with the presence of anti-mitochondrial antibodies (AMA), which are diagnostic

PBC:

* Associated with CREST syndrome, sicca syndrome, auto-immune thyroiditis, type I DM and IgA deficiency
* IgG AMA is detected in more than 90% of patients with PBC
* 90% of women are between 35 - 60 years
* Earliest symptom is pruritis
* Eventually hepatocellular failure and portal hypertension develops
* Lab findings:
  - Increased serum alkaline phosphatase
  - Increased serum 5-nucleotidase activity
  - Increased gamma-glutamyl transpeptidase
  - Serum bilirubin is usually normal
  - Aminotransferase levels minimally increased
  - Treatment: Ursodiol

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1102. Gene associated with the development of Peutz-Jeghers syndrome is

a) STK 11

b) PTEN

c) KRAS

d) BRCA 1

Correct Answer - A
Answer- A. STK 11
Germline heterozygous loss-of-function mutations in the gene STKil are present in approximately half of individuals with familial Peutz-Jeghers syndrome as well as a subset of patients with sporadic Peutz-Jeghers syndrome.

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1103. Which of the following is not true about amoebiasis?

a) ALA in 10% causes in tropics

b) Portal system efficient filter

c) Abscess due to suppuration

d) Abscess wall good for culture

Correct Answer - C

Ans. is 'c' i.e., Abscess due to suppuration

Amebic liver abscess

- Pus in *amoebic liver abscess is not due to suppuration, but is a mixture of sloughed liver tissue and blood.*
- It is chocolate brown in colour and thick in consistency (anchovy sauce pus)
- In the tropics 2-10% of the individuals infected with entamoeba histolytica suffer from hepatic complications. The trophozoites are carried from the large intestine to the liver by portal vein. In the liver the capillary system acts as efficient filter and holds these parasites.
- In case of amoebic liver abscess the diagnostic aspiration is done from the abscess wall *because the trophozoites are confined to the periphery.*

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1104. Right hand dominant patient presents with normal comprehension but speaks with short utterances of a few words at a time, comprised mostly of nouns. What is the most probable location of the lesion

a) Left inferior frontal gyrus

b) Right inferior frontal gyrus

c) Left superior temporal gyrus

d) Right superior temporal gyrus

Correct Answer - A

Answer- A. Left inferior frontal gyrus

Patient has normal comprehension but speaks with short utterances of a few words at a time, comprised mostly of nouns. These findings are suggestive of brocas aphsia. It is seen in patients having affection of the inferior frontal gyrus of the dominant hemisphere. The patient is right handed so the left hemisphere, will the dominant one. Thus most probable location of the lesion is left inferior frontal gyrus.

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1105. Pure word deafness is associated with

a) Middle cerebral artery stroke

b) Posterior cerebral artery stroke

c) Vertebral artery aneurysm

d) Basilar artery aneurysm

Correct Answer - A

Answer- A. Middle cerebral artery stroke

The most common causes are either bilateral or left-sided middle cerebral artery (MCA) strokes affecting the superior temporal gyrus. The net effect of the underlying lesion is to interrupt the flow of information from the auditory association cortex to Wernicke's area.

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1106. Global aphasia is seen due to

a) Strokes involving entire middle cerebral artery distribution in left hemisphere

b) Strokes involving entire middle cerebral artery distribution in right hemisphere

c) Strokes involving entire posterior cerebral artery distribution in left hemisphere

d) Strokes involving entire posterior cerebral artery distribution in right hemisphere

Correct Answer - A

Answer- A. Strokes involving entire middle cerebral artery distribution in left hemisphere

This syndrome represents the combined dysfunction of Broca's and Wernicke's areas and usually results from strokes that involve the entire middle cerebral artery distribution in the left hemisphere. Related signs include right hemiplegia, hemisensory loss, and homonymous hemianopia.

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1107. Lambert Eaton syndrome true is

a) It is a paraneoplastic syndrome associated with squamous cell carcinoma of lung

b) IgM antibodies against ligand gated calcium channels

c) There is increase in release of presynaptic acetylcholine

d) With continuous stimulation there is marked increase in amplitude of action potentials.

Correct Answer - D

Answer- D. With continuous stimulation there is marked increase in amplitude of action potentials.

- **It is a para**neoplastic syndrome associated with cancer particularly small cell Ca of lung.
- It is a disorder of neuromuscular junction transmission (Presynaptic)
- These IgG autoantibodies against the voltage sensitive calcium channels reduce the number of functioning channels.
- This causes decrease in release of presynaptic acetylcholine.

Symptoms

- Muscles of the trunk shoulder girdle, pelvic girdle and muscles of lower extremities (muscles of the proximal leg are the most commonly involved muscles)
- Often the first symptoms are difficulty in arising from a chair, climbing stairs and walking, the shoulder muscles are affected later on.

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1108. Which is not seen in Alzheimers disease

a) Gradual development of forgetfulness

b) Defective visuospatial orientation

c) Depression

d) Sequence of neurological abnormalities follows a described order

Correct Answer - D

Answer- D. Sequence of neurological abnormalities follows a described order

The sequence of neurological disabilities may not follow any described order and one or another deficit may take preceedence but usually the disease preceedes in the following four observed patterns.

1) Korsakoff amnestic state
2) Dysnomia
3) Visuospatial orientation becomes defective
4) Paranoia and other personality changes

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1109. Which lobe is affected in the early course of alzheimers disease

a) Frontal lobe

b) Parietal lobe

c) Medial temporal lobe

d) Lateral temporal lobe

Correct Answer - C
Answer- C. Medial temporal lobe
Structures of the medial temporal lobe, including hippocampus, entorhinal cortex and amygdala, are involved early in the course and are usually severely atrophied in the later stages.

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1110. Which is/are the usual first deformity/ies to be seen in CMT disease?

a) Pes cavus

b) Club hand

c) Mannus valgus

d) Flexion deformity of knee

Correct Answer - A

Answer- A. Pes cavus

Charcot-Marie-Tooth (CMT) disease is the most common type of hereditary neuropathy.

There is progressive muscle weakness and atrophy that usually begins in the first two decades of life.

The first signs of the disease are usually pes cavus, foot deformities and scoliosis.

There is slowly progressive weakness and wasting, first of the feet and legs and then of the hands.

The most common form of CMT is type 1, a demyelinating neuropathy with autosomal dominant inheritance, mapped most commonly to the short arm of chromosome 17.

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1111. Huntingtons disease is commonly seen in age group between

a) 15 - 35 years

b) 25 - 45 years

c) 35 - 55 years

d) 45 - 65 years

Correct Answer - B
Answer- B. 25 - 45 years
HD is a progressive, fatal, highly penetrant autosomal dominant disorder characterized by motor, behavioral, and cognitive dysfunction.
Onset is typically between the ages of 25 and 45 years (range, 3-70 years) with a prevalence of 2-8 cases per 100,000 and an average age at death of 60 years.
Huntigton's disease is characterized by triad of
Autosomal dominant inheritence
Choreoathetosis
Dementia

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1112. Which cranial nerve is involved in Weber syndrome?

a) II

b) III

c) IV

d) V

Correct Answer - B
Answer- B. III
Weber's syndrome- Midbrain- Oculomotor nerve- Ipsilateral third-nerve palsy

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1113. Violent abnormal flinging movements which are irregular and affecting one side are called as -

a) Chorea

b) Athetosis

c) Dystonia

d) Hemiballismus

Correct Answer - D

Answer- D. Hemiballismus

It is defined as the dysfunction in the implementation of appropriate targeting and velocity of intended movements, dysfunction of posture and abnormal involuntary movement, or the performance of normal appearing movements at inappropriate or unintended times.

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1114. Wernickes encephalopathy develops secondary to accumulation of which substrate?

a) Glutamate

b) Aspartate

c) Lactate

d) Acetate

Correct Answer - A
Answer- A. Glutamate
Glutamate accumulates owing to impairment of a ketoglutamate dehydrogenase activity and in combination with energy deficiency may result in excitotoxic cell damage.

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1115. Which of the following clinical test when positive suggests presence of sensory ataxia?

a) Romberg test

b) Adson test

c) Stinchfield test

d) Crossed SLR test

Correct Answer - A
Answer- A. Romberg test
The Romberg test is a test of the body's sense of positioning (proprioception), which requires healthy functioning of the dorsal columns of the spinal cord.
The Romberg test is used to investigate the cause of loss of motor coordination (ataxia).
A positive Romberg test suggests that the ataxia is sensory in nature, that is, depending on loss of proprioception.

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1116. Todds paralysis is experience following episode of

a) Focal seizure

b) Generalised seizure

c) After correction of hyponatremia

d) After correction of hypokalemia

Correct Answer - A

Answer- A. Focal seizure

Focal seizures arise from a neuronal network either discretely localized within one cerebral hemisphere.

The routine interictal (i.e., between seizures) electroencephalogram (EEG) in patients with focal seizures is often normal or may show brief discharges termed epileptiform spikes, or sharp waves.

Second, patients may experience a localized paresis (Todd's paralysis) for minutes to many hours in the involved region following the seizure.

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1117. Cerebro-occulo-genital syndrome has the following features except

a) Microcephaly

b) Short stature

c) Agenesis of corpus callosum

d) Flaccid quadriplegia

Correct Answer - D
Answer- D. Flaccid quadriplegia
Cerebro-occulo-genital syndrome is associated with microcephaly, short stature, microophthalmia, agenesis of corpus callosum, hypospadias and spastic quadriplegia.

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1118. Frontal lobe syndrome consists

a) Euphoria

b) Indifference

c) Irritability

d) All the above

Correct Answer - D
Answer- D. All the above
Euphoria, indifference, disinhibition, and irritability are consequences of frontal lobe lesions. These emotional and behavioural disturbances are usually referred to as frontal lobe syndrome. Other features are decreased social concern, jocularity, facetiousness, coarseness, hyperkinesia, disinhibition, loss of social graces, inappropriate sexual advances, sexual exhibitionism, impulsiveness, restlessness, and grandiose delusions.

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1119. Flapping tremors are not seen in

a) CO_2 toxicity

b) Hypomagnesemia

c) Subarachnoid hemorrhage

d) Carbolic acid poisoning

Correct Answer - D
Answer- D. Carbolic acid poisoning
It is an important clinical sign
It is not pathognomonic of any condition but it gives clue to serious underlying disease process.
Flapping tremor is a motor disturbance marked by intermettent lapses of an assumed posture as a result of intermittency of sustained contraction of group of muscles.

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1120. Features which differentiate seizures from syncope include the following except

a) No immediate precipitating factors like stress, valsalva, orthostatic hypotension

b) Immediate transition to unconciousness

c) Presence of cyanosis and frothing of mouth

d) Presence of premonitory symptoms like diaphoresis and tunneling of vision

Correct Answer - D

Ans. D. Presence of premonitory symptoms like diaphoresis and tunneling of vision

Features That Distinguish Generalized Tonic-Clonic Seizure From

Features	Seizure	Syncope
Immediate precipitating factors	Usually none	Emotional stress, Valsalve, orthostatic hypotension, cardiac etiologies
Premonitory symptoms	None or aura (e.g., odd odor)	Tiredness, nausea, diaphoresis, tunneling of vision
Posture at onset	Variable	Usually erect
Transition to unconsciousness	Often immediate	Gradual over seconds
Duration of unconsciousness	Minutes	Seconds
Duration of tonic or clonic movements	30-60 s	Never more than 15 a
Facial appearance during event	Cyanosis, frothing at mouth	Pallor
Disorientation and sleepiness after event	Many minutes to hours Often	< 5 min
Aching of muscles after event Biting	Sometimes	Sometimes
of tongue	Sometimes	Rarely
Incontinence	Sometimes	Sometimes
Headache		Rarely

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1121. Fine tremors are found in which disorder

a) Mercury poisoning

b) Excess smoking

c) Hypoglycemia

d) All the above

Correct Answer - D

Answer- D. All the above

Fine tremors are noted when a limb is held in an antigravity posture

They are noted in situations of catecholamine excess such as anxiety states, thyrotoxicosis, hypoglycemia and in alcoholism and excess smoking.

They are also noted after ingestion of drugs like caffeine, salbutamol, theophylline, amphetamine, tricyclic antidepressants, Lithium, valproate, steroids, and in mercury poisoning.

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1122. True about electrophoresis in patients of multiple myeloma

a) M component spike is for the alpha globulins

b) Monoclonal antibody must be present at a concentration of at least 10 g/L [1.0 g/dL] to be accurately quantitated by electrophoresis

c) M component is IgM in 53% of the patients

d) M component is IgA in 25% of the patients

Correct Answer - D

Answer- D. M component is IgA in 25% of the patients

The immunoglobulins move heterogeneously in an electric field and form a broad peak in the gamma region. The y globulin region of the electrophoretic pattern is usually increased in the sera of patients with plasma cell tumors. There is a sharp spike in this region called an M component (M for monoclonal).

The serum M component in multiple myeloma will be IgG in 53% of patients, IgA in 25%, and IgD in 1%; 20% ofMietits will have only light chains in serum and urine.

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1123. All but one is true for beta thalassemia major

a) Growth and development is impaired

b) Red cell count <4 x 10'2/L

c) Levels of HbA2 < 3.5%

d) Bone marrow iron is depleted

Correct Answer - D
Answer- D. Bone marrow iron is depleted
Anaemia Hb gm/dl- < 7 (severe)
Increased HbF, HbA2 and absence of HbA.

- Severity of disease ++++
- Growth and development impaired
- Splenomegaly ++++
- Skeletal changes +++
- Thalassemia facies

B.M. Iron- decreased

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1124. Immune thrombocytopenic puprpura associated with

a) Hepatitis A infection

b) Hepatitis B infection

c) Hepatitis C infection

d) Hepatitis D infection

Correct Answer - C
Answer- C. Hepatitis C infection
Immune thrombocytopenic purpura (ITP; also termed idiopathic thrombocytopenic purpura) is an acquired disorder in which there is immune-mediated destruction of platelets and possibly inhibition of platelet release from the megakaryocyte.
ITP is termed secondary if it is associated with an underlying disorder; autoimmune disorders, particularly systemic lupus erythematosus (SLE), and infections, such as HIV and hepatitis C, are common causes.

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1125. Which of the following is not a cause of secondary Idiopathic thrombocytopenic purpura?

a) Systemic lupus erythmatosus

b) Hepatitis C infection

c) Rheumatoid arthritis

d) HIV infection

Correct Answer - C

Answer- C. Rheumatoid arthritis

ITP is termed secondary if it is associated with an underlying disorder; autoimmune disorders, particularly systemic lupus erythematosus (SLE), and infections, such as HIV and hepatitis C, are common causes.

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1126. Drug/s used in management relapsed multiple myeloma is

a) Bortezomib

b) Lenalidomide

c) Doxorubicin

d) All the above

Correct Answer - D
Answer- D. All the above
The combination of bortezomib and liposomal doxorubicin is active in relapsed myeloma.
Thalidomide, if not used as initial therapy, can achieve responses in refractory cases.
High-dose melphalan and stem cell transplant, if not used earlier, also have activity in patients with refractory disease.

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1127. Treatment of chronic phase of CML in pregnant women is -

a) Imatinib

b) Leukapheresis

c) Spleenectomy

d) Interferon therapy

Correct Answer - B

Answer- B. Leukapheresis

Intensive leukapheresis may control the blood counts in chronic-phase CML; however, it is expensive and cumbersome.

It is useful in emergencies where leukostasis-related complications such as pulmonary failure or cerebrovascular accidents are likely.

Splenectomy was used in CML in the past because of the suggestion that evolution to the acute phase might occur in the spleen.

Splenic radiation is used rarely to reduce the size of the spleen.

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1128. Which of the following drug/s can be used for immediate parenteral anticoagulation in patients with venous thromboembolism?

a) Unfractioned heparin

b) Low molecular weight heparin

c) Fondaparinux

d) All the above

Correct Answer - D
Answer- D.[illegible]**All the above**
Immediately effective anticoagulation is initiated with a parenteral drug: unfractionated heparin (UFH), low-molecular-weight heparin (LMWH), or fondaparinux.
One should use a direct thrombin inhibitor[illegible]argatroban, lepirudin, or bivalirudin[illegible]in patients with proven or suspected heparin-induced thrombocytopenia.
Warfarin requires 5-7 days to achieve a therapeutic effect.

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1129. A patient presents with icterus, but there is no evidence of bilirubin in urine. What is the most likely cause of jaundice in this patient?

a) Hemolysis

b) Gall stones

c) Carcinoma head of pancreas

d) Biliary atresia

Correct Answer - A

Answer- A. Hemolysis

Hemolysis and hyperbilirubinemia

- Increased destruction of erythrocytes leads to increased bilirubin turnover and unconjugated hyperbilirubinemia; the hyperbilirubinemia is usually modest in the presence of normal liver function.
- Therefore, hemolysis alone cannot result in a sustained hyperbilirubinemia of more than -68 umol/L (4 mg/dL).
- When hemolysis is the only abnormality in an otherwise healthy individual, the result is a purely unconjugated hyperbilirubinemia.

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1130. True about sideroblastic anemia

a) Severity of the disease depends on the residual erythroid ALA synthase activity

b) Prussian blue staining sideroblasts are observed

c) Pyridoxine supplementation can be used for treatment

d) All the above

Correct Answer - D

Answer- D. All the above

XLSA results from the deficient activity of the erythroid form of ALA-synthase and is associated with ineffective erythropoiesis, weakness, and pallor.

Typically, males with XLSA develop refractory hemolytic anemia, pallor, and weakness during infancy.

Peripheral blood smears reveal a hypochromic, microcytic anemia with striking anisocytosis, poikilocytosis, and polychromasia; the leukocytes and platelets appear normal.

A variety of Prussian blue-staining sideroblasts are observed. Levels of urinary porphyrin precursors and of both urinary and fecal porphyrins are normal.

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1131. Massive transfusion is defined as transfusion of

a) 10/ 24 or more red cell products in hours.

b) 5/12 or more red cell products in hours.

c) 10/48 or more red cell products in hours.

d) 5/24or more red cell products in hours.

Correct Answer - A

Answer: A 10/ 24 or more red cell products in hours.

Various definitions of massive blood transfusion (MBT) have been published in the medical literature such as:

- Replacement of one entire blood volume within 24 h
- Transfusion of >10 units of packed red blood cells (PRBCs) in 24 h
- Transfusion of >4 units of PRBCs in 1 h when on-going need is foreseeable

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1132. Which is the most common cause of thrombocytopenia in an ICU patient?

a) Sepsis

b) Bone marrow failure

c) ITP

d) Drug induced

Correct Answer - A

Answer- A. Sepsis

Thrombocytopenia is a common laboratory abnormality that has been associated with adverse outcomes in ICU patients.

Thrombocytopenia is defined as platelet count < 150 X 103 cells / mcL.

Common causes of thrombocytopenia in ICU patients:

- Sepsis
- Disseminated intravascular coagulation
- Consumption (eg, major trauma, cardiopulmonary bypass)
- Dilution (with massive transfusion)
- Myelosuppressive chemotherapy
- Mechanical circulatory support devices (eg, intra-aortic balloon pump)

Less common but important causes of thrombocytopenia that should not be missed:

- Heparin-induced thrombocytopenia
- Hemophagocytic syndrome

Uncommon causes of thrombocytopenia that develop during ICU admission

- Drug-induced thrombocytopenia (other than heparin or cytotoxic chemotherapy)

- Leukemia, myelodysplasia, aplastic anemia, etc, unless abnormalities were already present before ICU admission

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1133. What percentage of Multiple myeloma patients have vertebral involvement?

a) 22%

b) 44%

c) 66%

d) 88%

Correct Answer - C

Answer- C. 66%

Bone lesions are most common in the vertebral column. The following distribution was seen in a large series of cases:

- Vertebral column → 66%
- Ribs- 44%
- Skull → 4%
- Pelvis → 28%
- Femur → 28%
- Clavicle → 10%

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1134. Multiagent chemotherapy induces remission in of the patients of acute myelogenous leukemia

a) 65 - 70

b) 75 - 80

c) 85 - 90

d) 95 - 100

Correct Answer - C
Answer- C.�85 - 90
Aggressive multiagent chemotherapy is successful in inducing remission in approximately 85-90% of patients.
Prognostic features [t(8;21); t(15;17); inv(16); APL] and improved outcome with chemotherapy, matched sibling stem cell transplantation is recommended only after a relapse
Matched-sibling bone marrow or stem cell transplantation after remission achieves long-term disease-free survival in about two thirds of patients.

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1135. In case of hypothyroidism which investigation is most informative and most commonly used ?

a) Serum TSH Level

b) Serum T3, T4 Level

c) Serum Calcitonin assay

d) Serum T3 level

Correct Answer - A

Ans is A ie Serum TSH Level

- *"A normal TSH Level excludes primary (but not secondary) hypothyrodism. If the TSH is elevated a free T4 level is needed to confirm the presence of clinical hypothyrodism, but free T4 is inferior to TSH when used as a screening test, as it will not detect subclinical or mild hypothyroidism. Circulating free T3 levels are normal in about 25% of the patients, reflecting adaptive respose to hypothyroidism. T3 measurements are therefore not indicated." - Harrison*
- *"Among the various available serum thyroid function tests, TSH is the most useful to assess gland dysfunction." ?*
  Endocrine Surgery of Head & Neck, p 83.

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1136. HbA1c control for how much time

a) 2 -3 weeks

b) 3 - 6 weeks

c) 6 - 8 weeks

d) 14 - 18 weeks

Correct Answer - C

Answer- C. 6 - 8 weeks

- The half-life of an erythrocyte is typically 60 days, the level of glycated hemoglobin (HbA1c) reflects the mean blood glucose concentration over the preceding 6-8 weeks.

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1137. HbA1C criteria for a patient to be diagnosed with diabetes mellitus is

a) >4.5%

b) >5.5%

c) >6.5%

d) >7.5%

Correct Answer - C
Answer- C. >6.5%
Fasting plasma glucose > (126 mg/dl)
Two hour plasma glucose > (200mg/d1) during an oral GTT
A/C > 6.5%

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1138. All are seen in MEN IIA syndrome except

a) Medullary carcinoma of thyroid is seen in 100% of the patients

b) 40 - 30% patients have phaeochromocytoms

c) Caused by loss of function mutation in IIRT protooncogene

d) Primary hyperparathyroidism is the most variable feature of MEN II A syndrome

Correct Answer - C

Answer- C. Caused by loss of function mutation in IIRT protooncogene

- MEN-2A or Sipple syndrome, is characterized by pheochromocytoma, medullary carcinoma of the thyroid, and parathyroid hyperplasia.
- Parathyroid hyperplasia and evidence of hypercalcemia or renal stones.
- MEN-2A is clinically and genetically distinct from MEN-I and is caused by germline gain-of-function mutations in the
- RET proto-oncogene on chromosome l0qll.2.
- 40% to 50% have pheochromocytomas.
- Primary hyperparathyroidism is the most variable feature of MEN 2A syndrome.

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1139. Which of the following is not true about the development of thyroid tumors in nodular goiter?

a) Prevalence of thyroid carcinoma ranges between 5-15% in the patients with multinodular goiter

b) Papillary carcinoma is the most common carcinoma developed in patients with nodular goiter

c) Both benign and malignant neoplasms can be seen in patients with nodular goiter

d) The risk of development of carcinoma is not correlated with the level of TSH

Correct Answer - D

Answer- D. The risk of development of carcinoma is not correlated with the level of TSH

Thyroid tumors both benign and malignant can be seen in colloid goiter with both solitary and multiple nodules.

The prevalence of thyroid carcinoma ranges from 5 – 15% in multinodular goiter and 8 – 17% in solitary colloid nodules.

The prevalence in higher in men compared to women and usually occurs in older age group.

The most common malignant tumor arising in mutinodular goiter is papillary carcinoma. Other like follicular carcinoma, hurthle cell carcinoma and medullary carcinoma are also encountered

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1140. Tertiary hyperparathyroidism is-

a) High PO_4 level with metastasis

b) Secondary hyperparathyroidism with CRF

c) Primary hyperparathyroidism with low Ca" levels

d) Secondary hyperparathyroidism with chief cell adenoma

Correct Answer - D

Ans. is 'd' i.e., Secondary hyperparathyroidism with chief cell adenoma

Davidson states "In very small proportion of cases of secondary hyperparathyroidism continuous stimulation of the parathyroid may result in adenoma formation and autonomous PTH secretion. This is known as tertiary hyperparathyroidism".

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1141. Indication for giving liothyronine as therapeutic management is

a) Resistant depression

b) Social phobia

c) Alzheimers disease

d) Cataplexy

Correct Answer - A

Answer- A. Resistant depression

It is the synthetic levorotatory isomer of triiodothyronine (T3).

Liothyronine is the most broadly used thyroid hormone for treatment of depression.

Liothyronine is used to accelerate the response to tricyclic antidepressants particularly in women.

It is known to augment response to antidepressants in patients with mood disorders, in those who failed to respond to a tricyclic antidepressant trialie. In patients with resistant depression.

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1142. Medical management of hyperparathyroidism includes which of the following?

a) Bisphosphonates

b) Calcitonin

c) Plicamycin

d) All the above

Correct Answer - D

Answer- D. All the above

Expansion of intravascular volume, administration of loop diuretics, pharmacotherapy which reduces osteoclastic bone resorption (like Bisphosphonates, Calcitonin, and Plicamycin) are useful in the medical management of hyperparathyroidism.

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1143. Which of the following causes of hypercalcemia is not associated with high bone turnover?

a) Hyperthyroidism

b) Vitamin A intoxication

c) Vitamin D intoxication

d) Thiazides

Correct Answer - C

Answer- C. Vitamin D intoxication

Vitamin D related

- Vitamin D intoxication
- Increased 1, 25 (OH)2D eg. Sarcoidosis
- Idiopathic hypercalcemia of infancy

Associated high bone turnover

- Hyperthyroidism
- Immobilization
- Thiazides
- Vitamin A intoxication

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1144. Fasting hypoglycemia is caused by the following except

a) Alcohol intake

b) Pentamidine therapy

c) Renal insufficiency

d) Chronic pancreatitis

Correct Answer - D

Answer- D. Chronic pancreatitis

Inappropriate (High) Insulin Level

- Insulin reaction in patients with diabetes - This is the most common cause of hypoglycemia, due to an imbalance between insulin supply and insulin requirements.
- Insulin secretagogue overdose in type 2 diabetes patients - Insulin secretagogues are oral hypoglycemic agents that work by stimulating insulin release from beta islet cells and, herefore, have the potential to cause hypoglycemia. Sulfonylureas
- (the most commonly prescribed type of these medications) are cleared by the kidney, so elderly patients with compromised renal function are at risk for developing hypoglycemia while on these agents.
- Factitious hypoglycemia (self induced or inadvertent)
- Autoimmune hypoglycemia
- Pentamidine - Pentamidine used for treatment/prophylaxis of PCP in patients with AIDS can cause hypoglycemia by direct injury to the beta islet cells causing hyperinsulinemia.
- Excess Insulin Secretion (Insulinoma)

1145. Diabetes insipidus is said to be present when

a) > 30ml/hr urine output in 24 hrs and < 260 mosml/L osmolarity

b) > 40ml/hr urine output in 24 hrs and < 280 mosml/L osmolarity

c) > 50ml/hr urine output in 24 hrs and < 300 mosml/L osmolarity

d) > 60ml/hr urine output in 24 hrs and < 320 mosml/L osmolarity

Correct Answer - C

Answer- C. > 50ml/hr urine output in 24 hrs and < 300 mosml/L osmolarity

- Decreased secretion or action of arginine vasopressin usually manifests as diabetes insipidus, a syndrome characterized by the production of abnormally large volumes of dilute urine.
- DI must be differentiated from other etiology of polyuria.
- The test should be started in the morning with careful supervision to avoid dehydration.
- Bodyweight, plasma osmolality, serum sodium, and urine volume and osmolality should be measured hourly.
- The test should be stopped when body weight decreases by 5% or plasma osmolality/sodium exceed the upper limit of normal.
- The 24-hour urine volume is >50 ml/kg body weight or urine osmolality
- Measurement of AVP levels before and after fluid deprivation may be helpful to distinguish central and nephrogenic DI.
- Occasionally, hypertonic saline infusion may be required if fluid deprivation does not achieve the requisite level of hypertonic dehydration, but this should be administered with caution.

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1146. Chronic adrenal insufficiency is caused by the following organisms except

a) Mycobacterium tubercle

b) Histoplasma capsulatum

c) Coccidioides immitis

d) Mycobacterium bovis

Correct Answer - D
Answer- D. Mycobacterium bovis
Infections, particularly tuberculosis and those produced by fungi, cause primary chronic adrenocortical insufficiency.
When present, tuberculous adrenalitis is usually associated with active infection in other sites, particularly in the lungs and genitourinary
AIDS sufferers are at risk for developing adrenal insufficiency from several infectious (cytomegalovirus, Mycobacterium aviumintracellulare) and noninfectious (Kaposi sarcoma) complications.

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1147. Which of the following is not a feature of myxedema coma?

a) Reduced level of consciousness and seizures with other features of hypothyroidism is seen

b) Hypoventilation leading to hypoxia and hypercapnia

c) Levothyroxine can be given via intravenous and nasogastric route

d) Levothyroxine should not be used in the management

Correct Answer - D

Answer- D. Levothyroxine should not be used in the management

- Myxedema coma is defined as severe hypothyroidism leading to decreased mental status, hypothermia, and other symptoms of hypothyroidism.
- Reduced level of consciousness, sometimes associated with seizures may also be seen.
- Factors that predispose to myxedema coma include cold exposure, trauma, infection, and administration of narcotics.
- Therapy for myxedema coma should include levothyroxine (500 µg) as a single IV bolus followed by daily treatment with levothyroxine (50–100 µg/d), along with hydrocortisone (50 mg every 6 h) for impaired adrenal reserve, ventilatory support, space blankets, and treatment of precipitating factors.

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1148. Acute adrenal insufficiency can present as

a) Acute abdomen with abdominal tenderness, nausea,vomiting and fever

b) Neurologic disease with decreased responsiveness progressing to stupor and coma

c) Hypovolemic shock

d) All of the above

Correct Answer - D
Answer- D. All of the above
Postural hypotension may progress to hypovolemic shock.
Adrenal insufficiency may mimic features of acute abdomen with abdominal tenderness, nausea, vomiting, and fever.
In some cases, the primary presentation may resemble neurologic disease, with decreased responsiveness, progressing to stupor and coma.
An adrenal crisis can be triggered by an intercurrent illness, surgical or other stress, or increased glucocorticoid inactivation (e.g., hyperthyroidism).

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1149. The gold standard test for diagnosis of Insulinoma is:

a) '72 hour' fast test

b) Plasma Glucose levels < 3 mmol/l

c) Plasma Insulin levels > 6µU/ml

d) C- peptide levels < 50 p mol/e

Correct Answer - A

The answer is A ('72 hour' fast test):

The Gold standard test for diagnosis of Insulinoma is a supervised '72 hour fast' test

Diagnosis of insulinoma requires demonstration of inappropriately high levels of plasma Insulin (and C- peptide) in the presence of documented hypoglycemia (Achieved by 72-hour fast test).

Absolute values of Insulin or C- peptide are not reliable in establishing a diagnosis unless hypoglycemia is documented The '72 hour fast test' allows demonstration of hypoglycemia, together will elevated levels of Insulin and C-peptide and thus becomes the most reliable – gold standard test for establishing a diagnosis of Insulinoma

Diagnosis of Insulinoma: '72 hour fast' test

- The diagnosis of Insulinoma requires the demonstration of an inappropriately elevated plasma insulin (and C-peptide) at the time of hypoglycemia.
- The '72 hour fast' test involves supervised fasting for up to 72 hours or until hypoglycemia can be documented.
- The test is considered positive if at any time when blood glucose levels drop to < 2.2mmo1/1 (40 mg/dl), the serum insulin levels are recorded to be greater than 6µU/ml. (and C- peptide levels > 100

pmo1/1)

- *Studies indicate that 100% of patients with insulinoma will be detected after a supervised 72 hour fast and hence this test is considered the gold standard test.*
  First 24 hours: 70-80% of patients with insulinoma can be detected
  Up to 48 hours: 98% of patients with insulinoma can be detected
  By 72 hours: 100% of patients with insulinoma can he detected

1150. Hypotonic solution given to correct

a) Dehydration secondary to diuretic therapy

b) Diabetic ketoacidosis

c) Hyperosmolar, hyperglycemic nonketotic syndrome

d) All the above

Correct Answer - D

Answer- D. All the above

- Hypotonic solution has osmolarity lower than seum osmolarity.
- When a patient receives hypotonic solution, fluid shifts out of the blood vessels and into the cells and interstitial spaces, where osmolarity is higher.
- Hypotonic solution hydrates cells while reducing fluid in the circulatory system.

Indications

- Dehydration secondary to diuretic therapy.
- Diabetic ketoacidosis
- Hyperosmolar, hyperglycemic nonketotic syndrome
- Examples of hypotonic solutions: half normal saline, 0.33% sodium chloride, dextrose 2.5% in water, dextrose 2.5%.

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1151. All of the following are causes of acute hyponatremia except

a) Glycine irrigation in TURP

b) Recent institution of thiazide therapy

c) MDMA ingestion

d) Liquorice ingestion

Correct Answer - D
Answer- D. Liquorice ingestion
causes of hyponatremia
Iatrogenic
Postoperative: premenopausal women
Hypotonic fluids with causes of 1' vasopressin
Glycine irrigation: TURP, uterine surgery
Colonoscopy preparation
Recent institution of thiazides
Polydipsia MDMA ingestion
Exercise-induced
Multifactorial, e.g., thiazide and polydipsia

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1152. Acute hyponatremia becomes symptomatic at

a) < 135 mEq

b) < 125 mEq

c) < 120 mEq

d) < 110 mEq

Correct Answer - B

Ans. is 'b' i.e., < 125 mEq

Serum level of sodium at which symptoms develop

Acute < 125 meq/L

Chronic < 120 meq/L

- Hyponatremia is commonly defined as a serum sodium < 135 mmol/L (< 135 mEq/L). Neurological symptoms
- occur at different levels of low sodium, depending not only on the absolute value but also on the rate of fall.
- In patients with hyponatremia that develops over hours, life-threatening seizures and cerebral edema may occur
- at values as high as 125 mmol/L.
- In contrast, some patients with more chronic hyponatremia that has slowly developed over months to years may be asymptomatic even with serum levels < 110 mmol.

Acute or hyperacute hyponatremia

- The hyponatremia developed within the previous 24 hours, it is called "acute."
- If the hyponatremia developed over just a few hours due to a marked increase in water intake (self-induced water intoxication, as may be seen in marathon runners, psychotic patients, and users of ecstasy), it is called "hyperacute."

Chronic hyponatremia

- If it is known that the hyponatremia has been presentfbr more than 48 hours, or if the duration is unknown (such as in patients who develop hyponatremia at home), it is called "chronic."

Mild to moderate hyponatremia

- Mild hyponatremia is usually defined as a serum sodium concentration between 130 and 135 meq/L.
- Moderate hyponatremia is often defined as a serum sodium concentration between 121 and 129 meq/L.

Severe hvponatremia

- Severe hyponatremia can be defined as a serum sodium of 120 meq/L or less.

Symptoms of hvponatremia

Absent symptoms

- Patients with hyponatremia are frequently asymptomatic, particularly if the hyponatremia is chronic and of mild or moderate severity (ie, serum sodium >120 meq/L).
- However, such patients may have subclinical impairments in mentation and gait.

Mild to moderate symptoms

- Mild to moderate symptoms of hyponatremia are relatively nonspecific and include headache, nausea, vomiting, fatigue, gait disturbances, and confusion.
- In patients with chronic hyponatremia (ie, >48 hours duration), these findings are not associated with impending herniation; however, in patients with more acute hyponatremia, such symptoms should be considered ominous and may evolve without warning to seizures, respiratory arrest, and herniation.

Severe symptoms

- Severe symptoms of hyponatremia include
- u Seizures
- Obtundation
- Coma
- Respiratory arrest.

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1153. Respiratory acidosis is recognized primarily by increase in

a) Pa02

b) PaCO2

c) HCO3

d) None of the above

Correct Answer - B

Answer- B. PaCO2

Respiratory acidosis occurs when there is accumulation of CO2 due to type II respiratory failure.it can also occur due to severe pulmonary disease, respiratory muscle fatigue, or abnormalities in ventilatory control and is recognized by an increase in Paco2 and decrease in pH

This results in a rise in the PCO2, with a compensatory increase in plasma bicarbonate concentration, particularly when the disorder is of long duration and the kidney has fully developed its capacity for increased acid excretion

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1154. Which of the following drug administration is not associated with hypomagnesemia?

a) Cisplatin

b) Valproate

c) Foscarnet

d) Cetuximab

Correct Answer - B

Answer- B. Valproate

Drugs causing hypomagnesemia

- Ethanol
- Diuretics (loop, thiazide, osmotic)
- Cisplatin
- Pentamidine, foscarnetCyclosporine
- Amino glycosides, amphotericin B
- Cetuximab

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1155. Dose of benzathaine penicillin G to be given in patients of latent syphilis in patients without penicillin allergy and normal CSF findings is

a) 0.6mU IM / week for 3 weeks

b) 1.2mU IM / week for 3 weeks

c) 2.4mU IM / week for 3 weeks

d) 4.8mU IM / week for 3 weeks

Correct Answer - C
Answer- C. 2.4mU IM / week for 3 weeks
Primary, secondary, or early latent- CSF normal or not examined: Penicillin G benzathine (single dose of 2.4 mU IM)
CSF abnormal -Treat as neurosyphilis
Late latent (or latent of uncertain duration), cardiovascular, or benign tertairy- CSF normal or not examined: Penicillin G benzathine (2.4 mU IM weekly for 3 weeks).
CSF abnormal : Treat as neurosyphilis

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1156. SARS infection case fatality rate of >50% is observed in patients of which age group?

a) < 20 yrs

b) 20 - 40 years

c) 40 - 60 years

d) > 65 years

Correct Answer - D

Answer- D. > 65 years

The case fatality rate from SARS-CoV infection during the 2003 outbreak was 10-17%. No pediatric deaths were reported. The estimated case fatality rate according to age varied from <1% for those younger than 20 year of age to >50% for those older than 65 yr of age.

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1157. Which of the following corroborates to the presence of clostridium difficle infection in patients taking antibiotics for another cause?

a) Diarrhoea unformed stools per 12 h for 2 days with no other recognized cause

b) Diarrhoea unformed stools per 24 h for 2 days with no other recognized cause

c) Diarrhoea unformed stools per 24 h for 3 days with no other recognized cause

d) Diarrhoea unformed stools per 24 h for 4 days with no other recognized cause

Correct Answer - B

Answer- B. Diarrhoea unformed stools per 24 h for 2 days with no other recognized cause

Diarrhoea unformed stools per 24 h for 2 days with no other recognized cause.

Toxin A or B detected in the stool by PCR or culture.

Pseudomembranes seen in colon by endoscopy.

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1158. Following are the features of neuropathy associated with varicella-zoster infection except

a) Persistent infection in neurons of sensory ganglia

b) With reactivation virus transported along nerves to skin

c) Shingles are distributed along motor dermatomes

d) Intranuclear inclusions are not found in peripheral nervous system

Correct Answer - C

Answer- C. Shingles are distributed along motor dermatomes

Varicella-zoster is one of the most common viral infections of the peripheral nervous system.

Following chickenpox, a latent infection persists within neurons of sensory ganglia.

If the virus is reactivated, sometimes many years later, it may be transported along the sensory nerves to the skin.

Here it infects keratinocytes, leading to a painful, vesicular skin eruption (shingles) in a distribution that follows sensory dermatomes

Most common is the involvement of thoracic or trigeminal nerve dermatomes.

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1159. **According to the congenital rubella syndrome eradication program, the first priority for rubella vaccination is offered to which of the following group?**

a) All female children at one year

b) All non pregnant women

c) All non pregnant women of age 15 to 34

d) All adolescent non pregnant girls 15 to 24 years of age

Correct Answer - C

The first and foremost priority has been given to the group of all non-pregnant women between the ages 15 and 34 for rubella vaccination. The other three options are suitable age groups.

Ref: Park's Textbook of Preventive and Social Medicine 19th edition; pages 130 - 131.

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1160. Extrahepatic Manifestations of Hepatitis C include all of the following Except:

a) Lichen Planus

b) Celiac Disease

c) Glomerulonephritis

d) Cryoglobulinemia

Correct Answer - B

Answer is B (Celiac disease)

Extrahepatic manifestations in viral hepatitis C: *Wepatology' by Kuntz*

- Agranulocytosis
- Aplastic anaemia
- Corneal ulceration
- Ciyoglobillinaemia
- Diabetes mellitus (type I)
- Erythema exsudativum multiforme
- Glomerulonephritis
- Guillain-Barre syndrome
- Hyperlipasaemia
- Lichen planus
- Non-Hodgkin lymphoma
- Polyarteritis nodosa
- Polyarthritis
- Polyneuritis
- Porphyria cutanea tarda
- Sialadenitis
- Sjogren's syndrome /Sicca syndrome
- Thrombocytopenia

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- Thyroiditis

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1161. All are features of SIRS except-

a) RR> 24 & Paco2 <22mm hg

b) WBC >11 or <4

c) Temperature <36 and >38

d) PR >90

Correct Answer - A

Answer- A. RR> 24 & Paco2 <22mm hg

Systemic Inflammatory Response Syndrome
Temperature >38.3°C, or <36°C
Heart Rate >90 bmp
Respiratory rate >20 breaths/min
White cell count <4 or >12 g/L
Blood glucose >7.7 mmol/L not diabetic
New altered mental state

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1162. Which of the following is not true about the epididymo¬orchitis of mumps?

a) It is the most common manifestation of mumps infection

b) Testicular enlargement usually resolves in 1 week

c) Bilateral testicular involvement seen in 10 - 30% of cases

d) Sterility rarely develops in these patients

Correct Answer - A

Answer- A. It is the most common manifestation of mumps infection

- Epididymo-orchitis is the second most common manifestation of mumps, developing in 15–30% of cases in postpubertal males.
– Orchitis, characterized by a painful, tender, fever and enlarged testis, is bilateral in 10–30% of cases and resolves within 1 week.
– Oophoritis (manifested by lower abdominal pain and vomiting) occurs in ~5% of women with mumps.
– Sterility in mumps is rare.

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1163. Most common nerve affected in leprosy

a) Posterior tibial

b) Ulnar

c) Median

d) Facial

Correct Answer - A
Answer- A. Posterior tibial
Leprosy affects peripheral mixed nerves and cutaneous nerves. The most common peripheral nerves affected in the order of frequency are the posterior tibial>ulnar> median> lateral popliteal> facial > radial

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1164. Dengue shock syndrome is characterized by the following except -

a) Hepatomegaly

b) Pleural effusion

c) Thrombocytopenia

d) Decreased haemoglobin

Correct Answer - D

Ans. is 'd' i.e., Decreased hemoglobin

Dengue hemorrhagic fever

Fever	Minor or Major hemorrhgic manifestations
Hepatomegaly	Thrombocytopenia 100,000/mm3
Hypoalbuminemia	Objective evidence of increased capillary permeability (hematocrit 20%.)

Pleural effusion (by chest radiograph) [Nelson, 17/e, p 1093]

Criteria for Dengue shock syndrome

- It includes those for dengue hemorrhagic fever plus, Hypotension or narrow pulse.

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1165. The following statements are true regarding botulism except -

a) Infant botulism is caused by ingestion of preformed toxin

b) Clostridium botulinum A, B, C and F cause human disease

c) The gene for botulinum toxin is encoded by a bacteriophage

d) Clostridium baratti may cause botulism

Correct Answer - A

Ans. is 'a' i.e., Infant botulism is caused by ingestion of preformed toxin

Infant botulism is caused by ingestion of spores. Spores are ingested in food, get established in the gut and there produce the toxin.

"Seven main types of C. botulinum, designated A - G, produce antigenically distinct toxins with pharmacologically identical action. All types can cause human disease, but type A, B and E are most common".

(In Harrison & Ananthanarayan, eight types of C. botulinum A, B, C_1, C_2, D, E, F, G have been mentioned).

Toxin production in clostridium botulinum appears to be determined by presence of bacteriophage (at least in type C & D).

"Clostridium butyricum and clostridium baratti have also been found to produce toxin". - Harrison 16th/e 843 - Any strain producing toxin will obviously cause botulism.

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1166. Austrian syndrome is caused by which infection

a) Staphylococcus aureus

b) Streptococcus pneumoniae

c) Staphylococcus epidermidis

d) Streptococcus viridans

Correct Answer - B
Answer- B. Streptococcus pneumoniae
Austrian syndrome is a medical condition first described by Robert Austrian in 1957.
The classical triad consists of pneumonia, endocarditis, and meningitis, all caused by Streptococcus pneumoniae.
It is associated with alcoholism, due to the presence of hyposplenia (reduced splenic functioning), and can be seen in males between 40 and 60 years old.

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1167. Factors contributing to the development of complications in measles are the following except-

a) Age group 5-20 years

b) Higher case fatality with overcrowding

c) Severe malnutrition

d) Lower serum retinol levels

Correct Answer - A

Answer- A. Age group 5-20 years

Complications of measles are largely attributable to the pathogenic effects of the virus on the respiratory tract and immune system. Morbidity and mortality from measles are greatest in patients younger than 5 yr of age (especially <1 yr of age) and older than 20 yr of age.

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1168. True about VHL syndrome is

a) It is an autosomal recessive condition

b) Central nervous system is not involved

c) Regular screening for clear cell carcinoma of kidneys is essential

d) VHL is a growth promoter gene

Correct Answer - C

Answer- C. Regular screening for clear cell carcinoma of kidneys is essential

Von Hippel-Lindau disease (VHL) is a rare autosomal dominant disease characterized by abnormal angiogenesis with benign and malignant tumors that affect multiple tissues.

The disease is inherited as a mutation in one allele of the VHL tumor-suppressor gene.

Somatic mutation of the normal allele leads to retinal angiomas, central nervous system (CNS) hemangioblastomas, pheochromocytomas and multicentric clear cell cysts, hemangiomas, and adenomas of the kidney.

The hi h risk of renal cell carcinoma mandates i eriodic surveillance usuall earl in adults b CT or MRI. Routine screening and awareness of the natural history of lesions has enabled renal-sparing approaches to disease management.

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1169. Tuberous sclerosis is caused by mutations in the following proteins

a) Hamartin

b) Tuberin

c) Merlin

d) Ankyrin

Correct Answer - A:B

Answer- A. Hamartin & B. Tuberin

It is caused by mutations in either the TSC1 gene, which maps to chromosome 9q34, and encodes a protein termed hamartin, or mutations in the TSC2 gene, which maps to chromosome 16p13.3 and encodes the tuberin protein.

Hamartin forms a complex with tuberin, which inhibits cellular signaling through the mammalian target of rapamycin (mTOR), and acts as a negative regulator of the cell cycle.

Patients with tuberous sclerosis have seizures, mental retardation, adenoma sebaceum (facial angiofibromas), shagreen patch, hypomelanotic macules, periungual fibromas, renal angiomyolipomas, and cardiac rhabdomyomas.

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1170. What characteristic finding of tuberous sclerosis is present at birth but not later in life?

a) Cardiac rhabdomyosarcoma

b) Facial angiofibroma

c) Periungal fibroma

d) Renal angiomyolipoma

Correct Answer - A

Answer- A. Cardiac rhabdomyosarcoma

Patients with tuberous sclerosis have seizures, mental retardation, adenoma sebaceum (facial angiofibromas), shagreen patch, hypomelanotic macules, periungual fibromas, renal angiomyolipomas, and cardiac rhabdomyomas.

Cardiac rhabdomyosarcomas can be present at birth in upto 80% of the infants with tuberous sclerosis. These involute in the first three years of life and completely disappear by adulthood

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1171. Following is not true about epinephrine

a) Has potent alpha and beta stimulating properties

b) It improves coronary perfusion pressure and myocardial blood flow

c) Increases cerebral blood flow during CPR

d) Routine use of high dose epinephrine during resuscitation is indicated

Correct Answer - D

Answer- D. Routine use of high dose epinephrine during resuscitation is indicated

Epinephrine (adrenaline) is an endogenous catecholamine with potent a- and 11-adrenergic stimulating properties.

The adrenergic action (vasoconstriction) increases systemic and pulmonary vascular resistance. The resultant higher aortic diastolic blood pressure improves coronary perfusion pressure and myocardial blood flow even though it reduces global cardiac output during CPR.

epinephrine also increases cerebral blood flow durin ood u uali CPR because peripheral vasoconstriction directs a greater proportion of flow to the cerebral circulation.However, epinephrine can decrease local cerebral microcirculatory blood flow at a time when global cerebral flow is increased.

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1172. Z track technique must be used for administration of

a) Injection Iron Dextran deep IM

b) Injection Hydroxyzine hydrochloride deep IM

c) Injection Depomedroxyprogesterone iv

d) Injection erythromycin

Correct Answer - A:B

Answer- A. Injection Iron Dextran deep IM & B. Injection Hydroxyzine hydrochloride deep IM

With intramuscular injections medications can leak upward into the subcutaneous tissues causing staining, bruising and significant pain for several weeks or longer with some medications.

Nurses are encouraged to use the Z track technique (causing a needle track or pathway in the shape of Z) any time an intramuscular injection is given, to prevent leakage and associated pain.

The Z track technique must be used whenever a deep intramuscular injection of iron dextran, and other irritating solutions such as hydroxyzine hydrochloride and several antipsychotic agents are given.

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1173. In man what quantity of ethyl alcohol consumed daily for > 10 years increases the relative risk of development of alcoholic liver disease

a) 20g/d

b) 40g/d

c) 60g/d

d) 80g/d

Correct Answer - D
Answer- D. 80g/d
80g/day x 10+ yr.

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1174. Not a feature of Wernicke's Korsakoff Syndrome

a) Ataxia

b) Psychosis

c) Normal pupillary response

d) Opthalmoplegia

Correct Answer - C
C i.e. Normal pupillary response

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1175. Which of the following antineoplastic agents is used in the management of Hodgkins lymphoma, non Hodgkins lymphoma and small cell carcinoma of lung?

a) Cisplatin

b) Bleomycin

c) Paclitaxel

d) Doxorubicin

Correct Answer - A
Answer- A. Cisplatin
Cisplatin is used in the management of Hodgkins lymphoma, non Hodgkins lymphoma and small cell carcinoma of lung.

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1176. Pierre robin syndrome following is true except

a) Consists of micrognathia and cleft palate

b) Tongue is of normal size

c) Airway obstruction particularly during expiration

d) 30 - 50% patients have Stickler syndrome

Correct Answer - C

Answer C. Airway obstruction particularly during expiration

Pierre Robin syndrome consists of micrognathia usually accompanied by a high arched or cleft palate.

The tongue is usually of normal size, but the floor of the mouth is foreshortened.

The air passages can become obstructed, particularly on inspiration, usually requiring treatment to prevent suffocation.

The infant should be maintained in a prone or partially prone position so that the tongue falls forward to relieve respiratory obstruction.

Some patients require tra- cheostomy.

Mandibular distraction procedures in the neonate can improve mandibular size, enhance respiration, and facilitate oral feedings.

Sufficient spontaneous mandibular growth can take place within a few months to relieve the potential airway obstruction.

Often the growth of the mandible achieves a normal profile in 4-6 year.

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1177. Mantle field radiation was used for management of -

a) Hodgkins lymphoma

b) Mantle cell lymphoma

c) Multiple myeloma

d) Cervical carcinoma

Correct Answer - A
Answer- A. Hodgkins lymphoma
Mantle field radiation is a type of radiation treatment used for Hodgkin's lymphoma
The term 'mantle' is derived from the name of a garment, much like a cloak, used many years back. The shape of the exposed area the radiation field has contours that resemble the shielding cloak.
This type of large radiation field is not commonly used today.

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1178. Alien limb syndrome seen in

a) Post neurosurgical cases

b) Alzheimers disease

c) Creutzfeldt-Jakob disease

d) All the above

Correct Answer - D
Answer- D. All the above
Alien hand syndrome (AHS) is a condition in which a person experiences their limbs acting seemingly on their own, without control over the actions.
The term is used for a variety of clinical conditions and most commonly affects the left hand.
Alien hand syndrome is best documented in cases where a person has had the two hemispheres of their brain surgically separated, a procedure sometimes used to relieve the symptoms of extreme cases of epilepsy.
It also occurs in some cases after brain surgery,stroke,infection, tumor, aneurysm and specific degenerative brain conditions such as Alzheimer's disease and Creutzfeldt-Jakob disease.

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1179. Osmolarity of Milk F-100 is

a) 399 mOsm/L

b) 409 mOsm/L

c) 419 mOsm/L

d) 429 mOsm/L

Correct Answer - C
Answer- C. 419 mOsm/L
UNICEF and WHO prepared two formula diets by modification of the cows milk - Milk F-75 (starter 75 kcal/100 ml) and F-100 (followup 100 kcal/ 100 ml).

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1180. Which of the following drugs can cause seizures except?

a) Lithium

b) Phencyclindine

c) INH

d) Ketorolac

Correct Answer - D
Answer- D. Ketorolac
Psychotropics
Antidepressants
Antipsychotics
Lithium
Drugs of abuse Amphetamine Cocaine
Phencyclidine Methylphenidate Flumazenil

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1181. Riboflavin deficiency causes

a) Corneal vascularization

b) Anemia

c) Personality changes

d) All the above

Correct Answer - D
Answer- D. All the above
Riboflavin deficiency is manifested principally by lesions of the mucocutaneous surfaces of the mouth and skin. In addition to the mucocutaneous lesions, corneal vascularization, anemia, and personality changes have been described with riboflavin deficiency.

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1182. Soret band in which porphyrins absorb light lie at what wavelength of the spectrum of light?

a) 200nm

b) 300nm

c) 400nm

d) 500nm

Correct Answer - C
Answer- C. 400nm
Due to this structure porphyrins avidly absorb light in a region near 400 nm of the light spectrum. This part of the light spectrum is called the Soret band.

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1183. Which of the following is not seen after nerve transection?

a) Morphologic pattern of wallerian degeneration

b) Myelin ovoids

c) Painful neuroma

d) Neuroma in continuity

Correct Answer - D

Answer- D. Neuroma in continuity

The morphologic hallmarks of axonal neuropathies produced by cutting a peripheral nerve, results in a prototypical pattern of injury described as Wallerian degeneration

Within a day of injury, the distal axons begin to fragment and the associated myelin sheaths unravel and disintegrate into spherical structures (myelin ovoids).

A failure of the outgrowing axons to find their distal target can produce a "pseudotumor" termed traumatic neuroma— a nonneoplastic haphazard whorled proliferation of axonal processes and associated Schwann cells that results in a painful nodule.

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1184. Reactive nitrogen species for killing of microbes are mainly derived from

a) Elemental nitrogen [N3]

b) Nitric Oxide [NO]

c) Nitrogen Dioxide [NO2]

d) Nitrous Oxide [N20]

Correct Answer - B
Answer- B. Nitric Oxide [NO]
Killing of microbes is accomplished by reactive oxygen species (ROS, also called reactive oxygen intermediates) and reactive nitrogen species, mainly derived from nitric oxide (NO), and these as well as lysosomal enzymes destroy phagocytosed debris.
This is the final step in the elimination of infectious agents and necrotic cells.

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1185. During state of arousal in men relaxation of smooth muscle in corpus cavernosum is mainly caused by

a) Acethycholine

b) Nitric oxide

c) Bicarbonate ions

d) Calcium

Correct Answer - B

Answer- B. Nitric oxide

Erectile dysfunction (ED) refers to the inability of men to attain and maintain an erect penis with sufficient rigidity to allow sexual intercourse.

Nitric oxide (NO) released parasympathetic nonadrenergic noncholinergic (NANC) nerves andvascular endothelium is the major transmitter causing relaxation of smooth muscle in corpus cavernosum and blood vessels supplying it; ACh and PGs also play a role.

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1186. Which of the following genes if affected will sporadically cause Juvenile myeloid leukemia?

a) NF1

b) PTEN

c) APC

d) SMAD2

Correct Answer - A
Answer- A. NF1
NF1 - Neurobiastoma, juvenile myeloid leukemia

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1187. Chronic manifestations of Aspergillosis are not evident in which of the following organs?

a) Skin

b) Brain

c) Lung

d) Eye

Correct Answer - D
Answer- D. Eye
Lung, sinus, brain, skin, heart,

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1188. **All of the following are true about incontinentia pigmenti, except:**

a) Ocular involvement is seen in almost 100% cases and is typically unilateral

b) Avascularity of peripheral retina

c) Primary skin abnormality

d) X-linked dominant

Correct Answer - A

Ocular involvement is seen in about 20-35 percent of the cases of incontinentia pigmenti but not in 100 percent cases as mentioned in the option. Incontinentia pigmenti is a X-linked dominant primary skin disease that leads to avascularity of the retina.

Ref: Rook's Textbook of Dermatology 7th Edition, Pages 39.20-3.22; The Retinal Atlas By Lawrence A. Yannuzzi, Page 38

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1189. Oculogyric crisis is known to be produced by all of the following drugs except

a) Trifluoperazine

b) Atropine

c) Perchlorperazine

d) Perphenazine

Correct Answer - B

Answer- B. Atropine

Oculogyric crisis is one of the manifestations seen in acute dystonic reaction (acute muscular dystonia).

Other manifestations are facial grimacing, torticollis, locked jaw, abnormal contraction of spinal muscles (opisthotonus).

It occurs within 1 to 5 days of antipsychotic therapy.

Trifluperazine, perchlorperazine and perphenazine are antipsychotic

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1190. Which of the following primarily governs the uptake of Tc-99m MDP in body?

a) Amount of osteogenic activity

b) Amount of iodine uptake

c) Amount of calcium uptake

d) Amount of catecholamine activity

Correct Answer - A

Answer- A. Amount of osteogenic activity

Technetium 99-m is a commonly used radiopharmaceutical. Technetium 99-m methylene diphosphonate (Tc-99mMDP), desirable for the gamma carmera imaging is the commonly used form.

Tc-99mMDP can be prepared from a kit containing, sodium pertechnitate ($NaTcO_4$) vial, MDP, stabilizers and stannous ion.

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1191. Technitium-99m pertechnetate labelled methylene diphosphonate is structurally similar to

a) Calcium phosphate

b) Phosphorus

c) Sodium bicarbonate

d) Magnesiumsulfate

Correct Answer - A

Answer- A. Calcium phosphate

The radionucletide administered is Technitium- 99m pertechnetate labeled methylene diphosphonate is an analog of calcium phosphate.

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1192. Laproscopic procedure patient develops shoulder pain due to

a) Subphrenic abscess

b) Positional pain during surgery

c) Subdiaphragmatic migration of gas

d) Injury to liver

Correct Answer - C
Answer- C. Subdiaphragmatic migration of gas
One type of pain that is unique to laparoscopy is the post laparoscopy shoulder pain due to the phrenic nerve irritation to the diaphragm caused by the CO, gas that remains in the abdomen at the end of the procedure. When the patient sits up, the gas moves upwards to the diaphragm and irritates it leading to referred pain C3-C%.

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1193. A patient comes with a complaint of shoulder pain after laparoscopic surgery. What should be the next step in management?

a) Oral paracetamol for 2 - 3 days

b) USG of shoulder region

c) Diagnostic shoulder arthroscopy

d) Intraarticular lignocaine injection

Correct Answer - A

Answer- A. Oral paracetamol for 2 - 3 days

Shoulder tip pain

- The patient should be warned about this preoperatively and told that the pain is referred from the diaphragm and not due to a local problem in the shoulders.
- It can be at its worst 24 hours after the operation. It usually settles within 2-3 days and is relieved by simple analgesics, such as paracetamol.

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1194. Which of the following should be done for an acute onset painful scrotal swelling in 12 years old male?

a) Doppler stethoscope evaluation

b) Administer analgesics

c) Advise bed rest

d) Administer antibiotics

Correct Answer - A

Answer- A. Doppler stethoscope evaluation

Acute onset painful scrotal swelling in 12 years old preadolescent male is most probably due to torsion of testis. In suspected cases of torsion of testis or testicular appendage a doppler stethoscope should be used to evaluate blood flow to the testicles.

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1195. Earliest hematological change following spleenectomy is

a) Leukocytosis and thrombocytosis

b) Presence of Heinz bodies

c) Evidence of Howell Jolly bodies

d) Poikilocytosis

Correct Answer - A

Answer- A. Leukocytosis and thrombocytosis

In the immediate postsplenectomy period, leukocytosis (up to 25,000/4) and thrombocytosis (up to 1.106/4) develop, but within 2-3 weeks, blood cell counts and survival of each cell lineage are usually normal.

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Following road traffic accident patient suffers polytrauma and is evaluated in the emergency section of the hospital. His pulse rate is 116, respiratory rate is 24, blood pressure of 122/78 mm of Hg and patient is mildly anxious. What is the approximate blood loss patient has following trauma?

a) <750 ml

b) 750 - 1500 ml

c) 1500 - 2000 ml

d) >2000 ml

Correct Answer - B

Answer- B. 750 - 1500 ml

Class of haemorrhagic shock				
	I	II	III	IV
Blood loss (mL)	Up to 750	750-1500	1500-2000	>2000
Blood loss (% blood volume)	Up to 15	15-30	30-40	>40
Pulse rate (per minute)	<100	100-120	120-140	>140
Blood pressure	Normal	Normal	Decreased	Decreased
Pulse pressure (mm Hg)	Normal or increased	Decreased	Decreased	Decreased
Respiratory rate (per minute)	14-20	20-30	30-40	>35
Urine output (mL/hour	>30	20-30	5-15	Negligible
Central nervous system/ mental status	Slightly anxious	Mildly anxious	Anxious, confused	Confused, lethargic

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1197. Sebaceous cyst occurs occur in all the following locations in body except

a) Palms and soles

b) Axilla

c) Back

d) Pubic area

Correct Answer - A

Answer- A. Palms and soles

The scalp, scrotum, shoulders, neck, and back are the common sites, but they can occur wherever there are sebaceous glands. There are no sebaceous glands on the palms of the hands and soles of the feet, thus sebaceous cysts are not found in these locations.

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1198. Cortisol levels remain elevated for how many week/s following hemorrhage?

a) 1

b) 2

c) 3

d) 4

Correct Answer - A
Answer- A. 1
Burn patients have demonstrated elevated circulating cortisol levels for upto 4 weeks, while soft tissue injury and hemorrhage may sustain elevated cortisol levels for as long as 1 week.

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1199. Surgical treatment of congenital hydrocele recommended if it fails to resolve by what age?

a) 1 year

b) 2 years

c) 3 years

d) 4 years

Correct Answer - B

Answer- B. 2 years

A patent processusvaginalis that is too narrow to prevent the development of an inguinal hernia may nevertheless allow peritoneal fluid to track down around the testis to form a congenital hydrocele. The majority resolve spontaneously as the processus continues to obliterate but surgical ligation is recommended in boys older than 2 years if they do not resolve spontaneously.

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1200. What percentage of gall stones are radio opaque?

a) 10- 20

b) 30 - 40

c) 50 - 60

d) 70 - 80

Correct Answer - A
Answer- A. 10- 20
Cholelithiasis is a common cause of epigastric or right upper quadrant pain in middle aged obese female patients.
Only 15 - 20% of the gall stones are radio-opaque.
Gallstones are the most common biliary pathology.
It is estimated that gallstones are present in 10-15% of the adult population in the USA.

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1201. Percentage of renal stones that are radio-opaque

a) 20

b) 40

c) 60

d) 80

Correct Answer - D

Answer- D. 80

Routine use of noncontast CT Scan has completely revolutionized to imaging evaluation of renal stone disease, nearly completely replacing plain radigrpahs and X urography for diagnosis of acute ureteral obstruction by renal stones.

Nephrolithiasis refers to the presence of calculi in the renal collecting system.

Nearly 10 % of the population will form a renal stone in their lifetime.

Sufficient calcium oxalate and phosphate is present in 80 % of the renal calculi for them to be radio-opaque on the plain radiographs.

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1202. Indications of thoracotomy in blunt chest trauma include all except

a) Initial drainage of > 500 ml of fresh blood

b) Rupture of bronchous

c) Continued bleeding of > 200 ml/ hr for >/= 3hrs

d) Unsuccesful attempt at drainage of cardiac tamponade

Correct Answer - A
Answer- A. Initial drainage of > 500 ml of fresh blood
Continued bleeding of > 200 ml/hr for > 3 hrs
Rupture of bronchus, aorta, esophagus or diaphragm.
Cardiac tamponade (if needle aspiration unsuccessful).

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1203. Visual examination is used as screening test for

a) Melanoma

b) Breast cancer

c) Thyroid cancer

d) Testicular cancer

Correct Answer - A
Answer- A. Melanoma
Visual examination is the only screening test for melanoma or skin cancer.
For lesions with suspicion of head and neck melanoma, dermatologists visual examination screening is 89 -97% sensitive with 35 - 75% positive predictive value.

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1204. Embolisation of tumors is done using

a) Polyvinyl alcohol

b) Autologous blood clots

c) Absolute ethanol

d) All the above

Correct Answer - D

Answer- D. All the above

The following are the embolic materials commonly used for trans-arterial embolization:

- Gelatin sponge particles
- Microspheres
- Autologous blood clots
- Polyvinyl alcohol
- n- butylcyanoacrylate glue
- Absolute ethanol

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1205.

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Definitive surgery is a part of which stage of damage control surgery?

a) I

b) II

c) III

d) IV

Correct Answer - D

Answer- D. IV

- Following major injury, protracted surgery in the physiologically unstable patient with the 'deadly triad' - the combination of hypothermia, acidosis and coagulopathy
- 'Damage control' or 'damage limitation surgery' is a concept that originated from naval architecture, whereby a ship was designed to have areas sealed off in the case of damage, to limit flooding.

Stages-

1. Patient selection
2. Control of haemorrhage and control of contamination
3. Resuscitation continued in the intensive care unit
4. Definitive surgery
5. Abdominal closure

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1206. Breast surgery is considered under what category of cardiac risk?

a) > 10 %

b) 5 - 10 %

c) 1 - 5 %

d) <1%

Correct Answer - D
Answer- D. <1%
Low (reported cardia risk < 1%)-
Endoscopic procedures
Superficial proccdure
Cataract surgery
Breast surgery
Ambulatory surgery

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1207. What is the order of disorientation, which a person goes through after an event of trauma to head?

a) First time, then place followed by person

b) First place, then time followed by person

c) First person, then time followed by place

d) First time, then person followed by place

Correct Answer - A

Answer- A. First time, then place followed by person

Orientation refers to the cleints recognition of person, place and time - that is knowing who and where e or she is and the correct day, date and year. This is commonly documented as "oriented X 3". Absence of correct information about person, place and time is referred to as disortientation.

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1208. Which of the following is the preferred route of access for total parenteral nutrition in a patient who requires the same for <14 days and there is otherwise no indication for use of central catheter?

a) Internal jugular vein

b) External jugular vein

c) Periphaeral vein

d) PICC line

Correct Answer - C

Answer- C. Periphaeral vein

Administration of parenteral nutrition via a peripheral venous catheter should be considered for patients who are likely to need short-term parenteral nutrition (less than 14 days) who have no need for central access for other reasons. Care should be taken in catheter choice, and in attention to pH, tonicity and long-term compatibility of the parenteral nutrition formulations in order to avoid administration or stability problems.

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1209. Which of the following is not true about use of graft in vascular surgery

a) Autologus saphenous vein achieves superior patency rates to prosthetic materials especially in femorodistal bypass

b) The patency of the PTFE grafts may be improved by interposition of a vein cuff at proximal anastomosis

c) Doppler ultrasound assessment is the method of choice for quality assuarance on completion of operative procedure

d) In the absence of specific contraindications aspirin should be prescribed for all the patients of peripheral vascular disease

Correct Answer - B

Answer- B. The patency of the PTFE grafts may be improved by interposition of a vein cuff at proximal anastomosis

Autologous saphenous vein achieves superior patency rates to prosthetic materials, especially in femorodistal bypass.

In situ and reversed vein graft bypasses perform equally well and the choice of technique should be based upon anatomical considerations that are specific to individual patients.

In the absence of saphenous vein, no convencing studies exist to suggest the preferred prosthetic alternative.

The patency of PTFE grafts may be improved by interposition of a vein cuff at the distal anastomosis.

Patency rates associated with pre-cuffed PTFE, grafts are comparable to that obtained from standard PTFE grafts with an interposition vein cuff.

There is no justification for the routine use of adjuvant distal arterivenous fistulae.

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1210. Intracranial pressure is not raised during

a) Hyperventilation

b) Status epilepticus

c) Head injury

d) Subdural hematoma

Correct Answer - A
Answer- A. Hyperventilation
Hyperventilation is used as a treatment with raised intracranial pressure.
Hyperventilation causes decreased PaCO2 which subsequently leads to arterial vasoconstriction thus lowering cerebral blood flow (CBF), cerebral blood volume, and intracranial pressure

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1211. Immediate physiological response to sudden decrease in blood volume is

a) Release of epinephrine

b) Shift of fluid from intracellular to interstitial compartment

c) Release of angiotensin

d) Release of thyroxine

Correct Answer - A

Answer- A. Release of epinephrine

The major hemodynamic abnormality in hypovolemic shock is decrease in preload.

The immediate physiological response of the body to the sudden decrease in volume (preload), is a release of catecholamines (epinephrine, norepinephrine).

The subsequent increase in heart rate and contractility help maintain cardiac output.

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1212. All of the following are indications for bariatric surgery except -

a) BMI>40 kg/m2

b) BMI> 35 kg/m2 with atleast one comorbidity

c) BMI>30 with long standing diabetes

d) Failure of other methods of weight loss

Correct Answer - C

Answer- C. BMI>30 with long standing diabetes

Indications for bariatric swgery

- BMI > 40kg/m2
- BMI > 35 kg/m2 with atleast one comorbidity
- Patient at high risk of obesity associated morbidity and mortality
- Failure of other methods of wight loss

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1213. Slip sign is seen in

a) Lipoma

b) Desmoid tumor

c) Sebaceous cyst

d) Hernia

Correct Answer - A
Answer- A. Lipoma
A characteristic "slippage sign" may be elicited by gently sliding the fingers off the edge of the tumor. The tumor will be felt to slip out from under, as opposed to a sebaceous cyst or an abscess that is tethered by surrounding induration.

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1214. For reimplantation digits are stored in

a) Ice packs

b) Deep freeze

c) Cold saline

d) Plastic bags with ice

Correct Answer - D
Answer- D. Plastic bags with ice
The amputated part should be wrapped in moistened gauze and placed in a sealed plastic bag. This bag should then be placed in an ice water bath. Do not use dry ice and do not allow the part to contact ice directly; frostbite can occur in the amputated part, which will decrease its chance of survival after replantation. Bleeding should be controlled in the proximal stump by as minimal a means as necessary, and the stump dressed with a nonadherent gauze and bulky dressing."

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1215. Characteristic site for development of venous leg ulcers is

a) Skin of gaiter region

b) Behind lateral malleolus

c) Shin of tibia

d) Medial aspect of knee

Correct Answer - A

Answer- A. Skin of gaiter region

The venous ulcer of the leg characteristically develops in the skin of the gaiter region, the area between the muscles of the calf and the ankle. This is the region where many of the Cockett perforators join the posterior tibial vein to the surface vein, known as the posterior arch vein

The majority of ulcers develop on the medial side of the calf but ulcers associated with lesser saphenous incompetence often develop on the lateral side of the leg.

Ulcers can develop on any part of the calf skin in patients with post-thrombotic legs; however, venous ulcers rarely extend on to the foot or into the upper calf and, if there is ulceration at these sites, other diagnoses should be seriously considered.

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1216. Which of the following is true about the management of venous ulcer of lower limb?

a) Initial treatment is debridement and surgery

b) Compression dressings should ideally be applied on twice weekly basis

c) Antibiotics do not speed up the ulcer healing

d) Biological dressings do not have potential to improve healing

Correct Answer - C

Answer- C. Antibiotics do not speed up the ulcer healing

- Patients are initially treated by a compression bandaging regimen.
- Alternative to these bandaging regimens is to apply a bland absorbent leak-proof dressing beneath a graduated elastic compression stocking (class II).
- Biopsies are indicated if malignancy is suspected and it is important to remember that a Marjolin's type of ulcer (a squamous cell or basal cell carcinoma) can develop in a chronic longstanding venous ulcer.
- Consideration must be given to healing the ulcer by excision and grafting.
- Biological dressings have been developed, including fetal keratinocytes and collagen meshes
- Pinch grafts and ulcer excision with mesh grafting have been shown to provide good early healing with moderate long-term results

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1217. Which of the following suture has max tensile strength and minimum tissue reaction

a) Poliglecaprone

b) Polypropylene

c) Polygalctine

d) Polydioxanone

Correct Answer - B

Answer- B. Polypropylene

Polypropylene sutures are non-absorbable and provide permanent wound support.

Polypropylene sutures are blue colored for easy identification during surgery.

Polypropylene sutures have excellent tensile strength and are used for orthopaedic, plastic and micro surgeries, general closure and cardiovascular surgeries

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1218. Blunt trauma exploratory laparotomy done nonexpansile swelling found on mesenteric border of intestine, management

a) Resection and anastomosis

b) Ligation

c) Excision of swelling

d) None

Correct Answer - D
Answer- D. None
Non Expansile swelling on mesenteric border of intestine is almost always due to mesenteric adenitis and it is an incidental finding, hence warranting no surgical intervention.

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1219. In SVC syndrome for non small cell carcinoma of lung management done

a) Radiotherapy

b) Immunotherapy

c) Chemotherapy

d) Surgery

Correct Answer - A

Answer- A. Radiotherapy

In patients with SVCS secondary to non–small-cell carcinoma of the lung, radiotherapy is the primary treatment. The likelihood of patients benefiting from such therapy is high, but the overall prognosis of these patients is poor

Small cell carcinoma of lung presenting as SVC syndrome - Combination of chemotherapy and radiotherapy.

Non Small cell carcinoma of lung presenting as SVC syndrome- Radiotherpy alone.

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1220. Hadfields operation is performed for which of the following pathology?

a) Duct ectasia

b) Fibroadenoma

c) Mondors disease

d) Inflammatory breast carcinoma

Correct Answer - A
Answer- A. Duct ectasia
TREATMENT-

- Stop smoking
- Hadfield’s operation- excision of all major ducts
- Antibiotics- amoxiclav and metronidazole

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1221. Microdochotomy is treatment for

a) Duct ectasia

b) Breast abscess

c) Duct papilloma

d) DCIS

Correct Answer - C
Answer- C. Duct papilloma
The final diagnosis is made by excising the involved duct (Microdochotomy) and any underlying mass if present and subjecting them for a histopathological diagnosis

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1222. Previous radition therapy for which disease particulary increases the risk of breast carcinoma development?

a) Hodgkins lymphoma

b) Mantle cell lymphoma

c) Nasopharyngeal carcinoma

d) Lung carcinoma

Correct Answer - A

Answer- A. Hodgkins lymphoma

A real problem in women who have been treated with mantle radiotherapy as part of the management of Hodgkin's disease, in which significant doses of radiation to the breast are received.

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1223. Which of the following histological type of breast carcinoma worst prognosis?

a) Tubular

b) Colloid

c) Papillary

d) Scirrhous

Correct Answer - D
Answer- D. Scirrhous
MC type of breast carcinoma is invasive ductal carcinoma (schirrhous).
MC form seen (60- 75%)
Hard lump, whitish yellow, non capsulated, irregular with cartilaginous consistency
Retraction of nipple

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1224. 52 years female patient presents with 4 cm diameter diagnosed breast cancer lesion with ipsilateral axillary and contralateral supraclavicular lymphadenopathy. As per AJCC system, patient belongs to which stage of breast cancer?

a) Ilia

b) None

c) IIIc

d) IV

Correct Answer - D
Answer- D. IV

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	AJC clinical staging of breast cancer.
Stage TIS:	*In situ* carcinoma (*in situ* lobular, intraductal, Paget's disease of the nipple without palpable lump)
Stage I:	Tumour 2 cm or less in diameter No nodal spread
Stage II:	Tumour > 2 cm and < 5 cm in diameter Regional lymph nodes involved
Stage III A:	Tumour ≥ 5 cm in diameter Regional lymph nodes involved on same side
Stage III B:	Tumour ≥ 5 cm in diameter Supraclavicular and infraclavicular lymph nodes involved
Stage IV:	Tumour of any size With or without regional spread but with distant metastasis

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1225. Best prognosis for carcinoma breast is seen with which of the following?

a) <1cm size, nodes -ye , ER/ PR +ve, her 2/ neu -ye

b) <1cm size, nodes -ye , ER/ PR -ye, her 2/ neu +ve

c) <2cm size, nodes -ye , ER/ PR +ve, her 2/ neu -ye

d) <2cm size, nodes -ye , ER/ PR -ye, her 2/ neu +ve

Correct Answer - A

Answer- A. <1cm size, nodes -ye , ER/ PR +ve, her 2/ neu -ye

Molecular changes in the tumor are also useful. Tumors that overexpress erbB2 (HER2/neu) or have a mutated p53 gene have a worse prognosis. Tumors that overexpress erbB2 are more likely to respond to higher doses of doxorubicin- containing regimens and predict those tumors that will respond to HER2/neu antibodies (trastuzumab) (herceptin) and HER2/ neu kinase inhibitors.

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1226. Favorable prognosis with > 90% 5 year survival rate for carcinoma breast is seen in which of the following?

a) Screen detected ductal carcinoma in situ

b) Screen detected lobular carcinoma in situ

c) Node negative tumor with favourable histology

d) None of the above

Correct Answer - A

Answer- A. Screen detected ductal carcinoma in situ

Intraductal carcinoma (malignant mammary ductal epithelial cells) without any invasion into basement membrane.

Group	Approximate 5-year survival rate	Example	Treatment
'Very low-risk' primary breast cancer	>90%	special types	Local
low-risk' primary breast cancer	70-90%	Node negative with favourable histology	Locoregional with/without systemic
'High-risk' primary breast cancer	<70%	Node positive or unfavourable histology	Locoregional with systemic
aLocally advanced	<30%	Large primary or inflammatory	Primary systemic
Metastatic			Primary systemic

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1227. A female undergone surgery for left breast cancer 3 yrs back now developed blue nodule on same side

a) Lymphangiosarcoma

b) Recurrence

c) Hemangioma

d) Cellulitis

Correct Answer - A

Answer- A. Lymphangiosarcoma

- Angiosarcoma is a vascular tumor which may arise de novo in the breast or as a complication of the radiation therapy.

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1228. What percentage of reduction in dying from breast cancer can be achieved with annual screening after age of 50 yrs with mammography?

a) 15- 20 %

b) 20- 25 %

c) 25- 30 %

d) 30- 35 %

Correct Answer - C

Answer- C. 25- 30 %

Meta-analysis examining outcomes from every randomized trial of mammography conclusively shows a 25-30% reduction in the chance of dying from breast cancer with annual screening after age 50 years.

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1229. Which of the following hormonal levels influence the development of benign breast disease?

a) Estrogen

b) Progesterone

c) Lutenizing hormone

d) Testosterone

Correct Answer - A:B
Answer- A.Estrogen & B. Progesterone
Etiology/Pathogenesis
Hormonal: Responsiveness of breast tissue to monthly changes of estrogen and progesterone play an important role in pathogenesis of benign breast disease. They may be related to excess hormonal stimulation or hypersensitivity of breast tissue.

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1230. Which of the following is true about breast reconstruction surgery

a) Easiest reconstruction is done using silicon gel implant

b) TRAM flap gives better cosmetic results than LD flap

c) Radiotherapy in post op period does not influence the outcome after breast reconstruction

d) Nipple reconstruction cannot be performed under local anesthesia

Correct Answer - A

Answer- A. Easiest reconstruction is done using silicon gel implant

The easiest type of reconstruction is using a silicone gel implant under the pectoralis major muscle.

This may be combined with prior tissue expansion using an expandable saline prosthesis first (or a combined device), which creates some ptosis of the new breast.

If the skin at the mastectomy site is poor (e.g. following radiotherapy) or if a larger volume of tissue is required, a musculocutaneous flap can be constructed either from the latissimusdorsi muscle (an LD flap) or using the transversusabdominis muscle (a TRAM flap as). The latter gives an excellent cosmetic result in experienced hands but is a lengthy procedure and requires careful patient selection.

It is now usually performed as a free transfer using microvascular anastomosis, although the pedicled TRAM from the contralateral side is still used.

Variations on the TRAM flap requiring less muscle harvesting, such as the DIEP flap (based on deep inferior epigastric vessels), are

increasingly being used.
Impediments to immediate reconstruction include insufficient theatre time and a lack of experienced reconstructive surgeons.
In addition, if a patient is likely to need postoperative radiotherapy then a delayed reconstruction using a flap often gives a better result. Radiotherapy onto a prosthesis often leads to a high incidence of capsular contracture and unacceptable results.
Nipple reconstruction is a relatively simple procedure that can be performed under a local anaesthetic.

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1231. Treatment of large omphalocele defect can be done by

a) Primary closure

b) Staged closure using PTFE mesh

c) Painting intact sac daily with antiseptic solution

d) All the above

Correct Answer - D
Answer- D. All the above
Large defects present a more substantial problem and four techniques have been described: non-operative therapy, skin flap closure, staged closure and primary closure

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1232. Which of the following is not true about Pateys mastectomy

a) It is also called modified radical mastectomy

b) Intercosto brachial nerves are usually preserved

c) All lymph nodes of axilla are removed

d) Pectoralis muscle is either divided or retracted

Correct Answer - B

Answer- B. Intercosto brachial nerves are usually preserved

It is also called modified radical mastectomy and is a commonly performed procedure.

The intercostal brachial nerves are usually divided in this operation and the patient should be warned about sensation changes postoperatively.

The wound is drained using a wide-bore suction tube.

Early mobilisation of the arm is encouraged and physiotherapy helps normal function to return very quickly

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1233. Macroprolactinoma ideal treatment is

a) Excision

b) Bromocriptine

c) Stereotactic radio surgery

d) Observation

Correct Answer - B
Answer- B
Bromocriptine (BEC) is generally considered to be the agent of choice in the treatment of prolactinoma because of its long track record and safety.

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1234. Initial treatment for most patient of growth hormone secreting pituitary adenoma is

a) Transphenoidal surgical resection

b) Somatostatin analogs

c) GH rector antagonists

d) Dopamine agonists

Correct Answer - A

Answer- A. Transphenoidal surgical resection

Transsphenoidal surgical resection by an experienced surgeon is the preferred primary treatment for both microadenomas (cure rate -70%) and macroadenomas (<50% cured).

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1235. Radioiodine preferred in treatment in

a) Young patients

b) Pregnancy

c) Recent onset of toxic goiter

d) Post surgery for papillary thyroid cancer

Correct Answer - C

Answer- C. Recent onset of toxic goiter

The main indications for RAI therapy include the following conditions

1. Hyperthyroidism due to:
   - Grave's disease
   - Toxic multinodular giotre or
   - Hyperfunctioning thyroid nodules
2. Non-toxic multinodular goitre
3. Thyroid cancer.

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1236. Parathyroid adenomas account for how much percentage of patients with primary hyperpara-thyroidism?

a) 50%

b) 60%

c) 70%

d) 80%

Correct Answer - D
Answer- D. 80%
Solitary adenomas, A single abnormal gland, is the cause in -80% of patients; the abnormality in the gland is usually a benign neoplasm or adenoma and rarely a parathyroid carcinoma.

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1237. MC site for thyroglossal cyst is:

a) Beneath the foramen caecum

b) Floor of mouth

c) Above hyoid

d) Subhyoid

Correct Answer - D
Ans. D i.e. Subhyoid
Sites of thyroglossal cyst
1. Subhyoid: The most common type
2. At the level of thyroid cartilage: 2nd common site
3. Suprahyoid: Double chin appearance
4. At the foramen caecum: Rare
5. At the level of cricoid cartilage: Rare
6. In the floor of the mouth

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1238. Investigation of choice for hepatic metastasis form stomach cancer is

a) MRI

b) CECT

c) USG

d) HIDA

Correct Answer - B
Answer- B. CECT
CT is the imaging modality of choice for evaluating liver metastases. This preference is largely attributable to the effects of the dual blood supply on the enhancement characteristics of metastases, as compared with normal liver parenchyma.

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1239. Prognosis of surgery for liver secondaries is best for which cancer?

a) Colorectal

b) Neuroendocrine

c) Genitourinary

d) Esophageal

Correct Answer - C
Answer- C. Genitourinary
For noncolorectal, nonneuroendocrine tumors, metastases from genitourinary primaries have the best prognosis following hepatic metastatectomy.

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1240. Indicatons of liver transplant in PCM poisoning are all except

a) SGPT increase

b) PT/INR

c) High creatinine

d) Encephalopathy

Correct Answer - A

Answer- A. SGPT increase

Indication poor prognosis and hence necessitate a transplant in such patients-

1. Arterial pH < 7.3 (taken by sampling of blood from an artery)
2. All three of an international normalized ratio (INR) of greater than 6.5, serum creatinine of greater than 300 micromoles per litre and the presence of encephalopathy (of grade III or IV). These three are markers of coagulopathy, kidney function and mental status.

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1241. Milan criteria is for

a) Selecting patients for Liver transplantation

b) Selecting patients for Lung transplantation

c) Selecting patients for Kidney transplantation

d) Selecting patients for heart trnasplantation

Correct Answer - A

Answer- A. Selecting patients for Liver transplantation

The Milan criteria state that a patient is selected for transplantation when he or she has:

1. One lesion smaller than 5 cm
2. Up to 3 lesions smaller than 3 cm
3. No extrahepatic manifestations
4. No vascular invasion

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1242. What should be the plan of management for a patient for whom while undergoing simple cholecystectomy T2 gall bladder carcinoma is discovered?

a) Resection of 4b-5 segement, dissection of the N1-2 nodes and excision of port sites

b) Post operative adjuvant chemotherapy

c) Radical cholecystectomy

d) Whipples procedure

Correct Answer - A

Answer- A. Resection of 4b-5 segement, dissection of the N1-2 nodes and excision of port sites

Stage I and II - simple cholecystectomy

Stage III – cholecystectomy + adjacent hepatic resection (atleast 2cm depth) + regional lymphadenectomy

Poor prognosis

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1243. The Gall stone pain is referred to the shoulder through which of the following nerves:

a) C2-C8

b) T1-T4

c) T8-T12

d) C3-05

Correct Answer - D
Ans is 'd' i.e. C3-05
Gallstone disease may refer pain to the right shoulder tip (k/a Kehr's sign). This is because, an inflamed gallbladder irritates the diaphragm which is supplied by the phrenic nerve (C3-05). These cervical nerve roots, also provide sensory supply to the right shoulder through supraclavicular nerves. Hence the gallbladder pain is referred to the right shoulder through the C3-05 nerve roots.
Kehr's sign is a classic example of referred pain: irritation of the diaphragm is signaled by the phrenic nerve as pain in the area above the collarbone. This is because the supraclavicular nerves have the same cervical nerves origin as the phrenic nerve, C3 and C4.
Boas' sign can also indicate stomach and duodenal disease. When the transverse processes of thoracic vertebrae T10-T12 are pressed or effleuraged with the bottom of the hand, pain can appear at left of spinous processes (in stomach's lesser curvature ulcer) or at right (in pyloric or duodenal ulcer).
Boas' or Boas's sign is hyperaesthesia (increased or altered sensitivity) below the right scapula can be a symptom in acute cholecystitis (inflammation of the gallbladder).

cholecystitis (inflammation of the gallbladder).

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1244. 3cm stone in cystic duct near the ampulla of vater, The Method of removal is a

a) Transduodenal approach

b) Supraduodenal approach

c) Lithotripsy

d) Chemical dissolution

Correct Answer - A
Answer- A. Transduodenal approach
According to Maingot's "The methods of surgical drainage include transduodenal sphincterotomy, choledochoduodenotomy, and choledochojejunostomy."

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1245. In which condition, medical treatment of gall stone is indicated -

a) Stone is < 15 mm size

b) Radio opaque stone

c) Calcium bilirubinate stone

d) Non functioning gall bladder

Correct Answer - A
Ans is 'a' is Stone is < 15 mm size
Medical treatments for gallstones, used alone or in combination, include the following-

- Oral bile salt therapy (ursodeoxycholic acid) (particularly for x-ray-negative cholesterol gallstones in patients with normal gallbladder function)
- Extracorporeal shockwave lithotripsy (particularly for noncalcified cholesterol gallstones in patients with normal gallbladder function)
- Medical management is more effective in patients with good gallbladder function who have small stones (< 1 cm) with a high cholesterol content. Bile salt therapy may be required for more than 6 months and has a success rate of less than 50%.

1246. Regarding Ca gallbladder -

a) Squamous cell ca is the most common

b) Present with jaundice

c) Good prognosis

d) All

Correct Answer - B

Answer (b) Presents with jaundice

- Biliary tract cancers tend to be slow-growing tumours that invade locally and metastasise to local lymph nodes.
- Distant metastases to the peritoneal cavity, liver and lung do occur.
- Jaundice is the most common presenting feature.
- Abdominal pain, early satiety and weight loss are also commonly seen.
  - On examination, jaundice is evident, cachexia often noticeable and a palpable gall bladder is present if the obstruction is in the distal common bile duct (Courvoisier's sign).

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1247. Which of the following is not a prognostic factor for Acute Pancreatitis

a) Serum Amylase

b) Serum Calcium

c) Serum Glucose

d) Serum AST

Correct Answer - A

Answer is A (Serum Amylase) :

Serum Amylase does not form any criteria for prognosis in Acute Pancreatitis.

Although elevated serum amylase level is important for establishing diagnosis of acute pancreatitis, it plays no role in predicting prognosis or severity.

"There appears to be no definite correlation between severity of pancreatitis and the degree of serum amylase elevation. After 48 to 72 hours, even with continuing evidence of pancreatitis, total serum amylase levels tend to return to normal." - Harrison

Hyperglycemia (Glucose), Hypocalcemia (Calcium) and elevated serum AST are all poor prognostic factors in accordance with Ranson's criteria as elaborated in the previous question.

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1248. Most sensitive and specific for acute pancreatitis amongst the following is:

September 2008

a) S.amylase

b) S.Alanine transaminase

c) S.lipase

d) C-reactive protein

Correct Answer - C

Ans. C: S.lipase

Serum markers for diagnosis of acute pancreatitis:

- Alanine transaminase-Associated with gallstone pancreatitis; three fold elevation or greater in the presence of acute pancreatitis has a positive predictive value of 95 percent in diagnosing acute gallstone pancreatitis
- Amylase
- Most accurate when at least twice the upper limit of normal; amylase levels and sensitivity decrease with time from onset of symptoms
- C-reactive protein
- Late marker; high levels associated with pancreatic necrosis
- Lipase
- Increased sensitivity in alcohol-induced pancreatitis; more specific and sensitive than amylase for detecting acute pancreatitis
- Phospholipase A2
- Associated with development of pancreatic necrosis and pulmonary failure
- Procalcitonin

- Early detection of severity; high concentrations in infected necrosis
- Trypsinogen activation peptide
- Early marker for acute pancreatitis and close correlation to severity

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1249. Which enzyme is of diagnostic importance in chronic pancreatitis

a) Amylase

b) Pancreatic polypeptide

c) Lipase

d) Serum Interleukin 6 levels

Correct Answer - C

Answer- C. Lipase

Elevated lipase levels are more specific to the pancreas than elevated amylase levels. Lipase levels remain high for 12 days. In patients with chronic pancreatitis (usually caused by alcohol abuse), lipase levels may be elevated in the presence of a normal serum amylase level.

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1250. Most common screening test for acute pancreatitis -

a) Serum amylase

b) Serum lipase

c) Urine trypsinogen

d) Insulin

Correct Answer - C
Answer- C. Urine trypsinogen
Rapid measurement of urinary trypsinogen - 2 level is useful in the emergency department as a screening test for acute pancreatitis.

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1251. Which of the following is/ are the imaging criteria for unresectable carcinoma of pancreas?

a) Metastatic spread to vertebrae

b) Invasion in duodenal wall

c) Irregular increase in density of omental fat

d) All the above

Correct Answer - D
Answer- D. All the above
Metastatic spred outside the pancreas makes tumor irresectable.
Tumor invasion into adjacent organs significs unresectability.

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1252. Drug of choice for palliative treatment of pancreatic carcinoma

a) Erlotinib

b) Gemcitabine

c) Paclitaxel

d) Cyclophosphomide

Correct Answer - B

Answer- B. Gemcitabine

A) Inoperable locally advanced disease-

- Gemcitabine is used a the treatment of choice for these patients.

B) Metastatic Disease

- Gemcitabine is the standard treatment with a median survival of 6 months and a 1-year survival rate of only 20%.
- Capecitabine, an oral fluoropyrimidine, has been combined with gemcitabine (GEM-CAP) in a phase III trial that showed an improvement in response rate and progression-free survival over single-agent gemcitabine, but no survival benefit.

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1253.

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Modified-Kaush Whipple operation is devised to preserve which part of stomach?

a) Fundus

b) Body

c) Lesser curvature

d) Pyloric antrum

Correct Answer - D

Answer- D. Pyloric antrum

This procedure is also called pylorus preserving pancreaticoduodenectomy (PPPD or pp-Kaush Whipple procedure). It is the procedure of choice for most adenocarcinomas of the head of pancreas.

The original pancreato- duodenectomy as proposed by Whipple included resection of the gastric antrum.

The Whipple procedure is now reserved for situations in which the entire duodenum has to be removed (e.g. in FAP) or where the tumour encroaches on the first part of the duodenum or the distal stomach and a PPPD would not achieve a clear resection margin.

1254. Which of the following causes of acute pancreatitis can cause recurrent bouts without any obvious pathology

a) Sphincter Oddi dysfunction

b) Pancreas divisum

c) Hypertriglyceridemia

d) All the above

Correct Answer - D

Answer- D. All the above

Etiology-

- Gall stones (most common)
- Alcohol abuse is the second cause of acute pancreatitis.
- Occult disease of the biliary tree or pancreatic ducts, especially microlithiasis, sludge.
- Hypertriglyceridemia
- Pancreas divisum
- Pancreatic cancer
- Sphincter of Oddi dysfunction
- Cystic fibrosis
- Drugs- Steroids, Azathioprine, Valproate, Estrogens, L-Asparaginase, 6-mercaptopurine, Sulfonamides, Tetracycline, Anti-retroviral agents, Thiazide diuretics
- Familial or genetic
- Hyperparathyroidism
- Hypercalemia
- Post ERCP
- Most common causes in children: blunt abdominal injuries,

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multisystem disease (hemolytic uremic syndrome and inflammatory bowel disease) biliary stones or microlithiasis (sludging), and drug toxicity

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1255. **Pseudocyst pancreas is developed in how much duration following an attack of acute pancreatitis?**

a) Less than 1 week

b) Less than 2 weeks

c) 3 or more weeks

d) 4 or more weeks

Correct Answer - D

Answer- D. 4 or more weeks

- Pseudocysts typically arise following an attack of mild acute pancreatitis, lie outside the pancreas, and represent an APFC that has not resolved and matured.
- Formation of a pseudocyst requires 4 weeks or more from the onset of acute pancreatitis.

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1256. Cullen's sign is seen in:

March 2004

a) Acute cholecystitis

b) Acute hepatitis

c) Acute pancreatitis

d) Blunt injury abdomen

Correct Answer - C
Ans. C i.e. Acute pancreatitis

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1257. How much percentage of the blunt trauma injuries to spleen in adults are currently managed non operatively?

a) 30%

b) 50%

c) 80%

d) 90%

Correct Answer - C

Answer- C. 80%

Spleen is the intra-abdominal organ most commonly injured in a blunt trauma to the abdomen.

Up to 80% of **blunt splenic injuries** can be **managed non-operatively**.

It can be managed in 2 ways :

i) Non-operatively

- This is now the order of the day and currently > 70% of adults with blunt splenic injuries are managed non-operatively.
- But the primary requirement for it is - hemodynamic stability.

ii) Operative management

- Patients who are hemodynamically unstable or are failing non-operative management (eg. require continuing transfusion) should undergo operative treatment.

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1258. Most prevalent symptom in patients of leiomyoma of esophagus is

a) Pain

b) Pyrosis

c) Dysphagia

d) Weight loss

Correct Answer - C
Answer- C. Dysphagia
CLINICAL FEATURES-

- Asymptomatic (<5cm)
- Dysphagia, pain
- More common in males
- Location- 2/3rd of oesophagus

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1259. Following is not true about traction diverticulum of esophagus -

a) Produced due to the extraluminal forces

b) It is not a true diverticulum

c) The outpouching is usually small and conical

d) May develop tracheoesophageal fistula

Correct Answer - B

Answer- B. It is not a true diverticulum

In traction diverticula extraluminal forces (like inflammed & scarred peribronchial & mediastinal lymph nodes) pull the full thickness of the esophagus out, creating a true diverticula.

Traction diverticula are much less common. They are mostly a consequence of chronic granulomatous disease affecting the tracheobronchial lymph nodes due to tuberculosis, atypical mycobacteria or histoplasmosis.

Fibrotic healing of the lymph nodes exerts traction on the oesophageal wall and produces a focal outpouching that is usually small and has a conical shape

1260. Which of the following is false about zenkers diverticulum

a) Most patients are above 50 years of age

b) It is the most common esophageal diverticulum

c) Mucosal outpouching through the killians triangle

d) Cervical webs can be associated with zenkers diverticulum in 80% of the patients

Correct Answer - D

Answer- D. Cervical webs can be associated with zenkers diverticulum in 80% of the patients

Zenker diverticulum originates from the posterior wall of the esophagus in a triangular area of weakness, limited inferiorly by the cricopharyngeus muscle and superiorly by the inferior constrictor muscles (ie, the Killian triangle).

Zenker's diverticulum, also pharyngoesophageal diverticulum, also pharyngeal pouch, also hypopharyngeal diverticulum, is a diverticulum of the mucosa of the pharynx, just above the cricopharyngeal muscle (i.e. above the upper sphincter of the esophagus).

It is a pseudo diverticulum (not involving all layers of the esophageal wall).

Seen in 50years old.

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1261. Dohlman procedure for-

a) Meckel’s diverticulum

b) Zenker’s diverticulum

c) Dermatomyositis

d) Menetrier’s disease

Correct Answer - B
Answer- B (Zenker’s diverticulum)
The treatment of pharyngeal pouches (Zenker’s Diverticulum) may be by either open surgical or endoscopic techniques. The endoscopic Dohlman’s procedure is an ideal technique in the elderly.

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1262. True about esophageal carcinoma is

a) More lethal than the colorectal cancers

b) These show an increasing trend towards the number of squamous cell carcinomas

c) Smaller size esophageal lesions have better survival

d) Asymptomatic benign lesions should be excised immediately

Correct Answer - A

Answer- A. More lethal than the colorectal cancers

Etiology:

- alcohol and smoking: for squamous cell carcinoma and adenocarcinoma
- achalasia
- asbestosis
- Barrett oesophagus: for adenocarcinoma
- coeliac disease
- ionising radiation
- caustic stricture/lye stricture
- Plummer-Vinson syndrome
- Even when detected as a small lesion, esophageal cancer has poor survival because of the abundant esophageal lymphatics leading to regional lymph node metastases.

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1263. Patient complains of intermittent dysphagia which is equal both for solids and liquids, which of the following is the most probable diagnosis?

a) Achalasia cardia

b) Esophageal stricture

c) Carcinoma esophagus

d) Diffuse esophageal spasm

Correct Answer - D
Answer- D. Diffuse esophageal spasm
Clinical features-

- Hypertrophy of circular muscles
- Dysphagia
- Chest pain

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1264. Early and late suspected instrumental perforation of oesophagus should first be assessed using

a) Water soluble contrast swallow

b) CT Scan

c) Dilute barium swallon

d) MRI

Correct Answer - A

Answer- A. Water soluble contrast swallow

If this is negative, a dilute barium swallow should be considered. A CT scan can be used to replace a contrast swallow or as an adjunct to accurately delineate specific fluid collections.

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1265. Downhill esophagus varices develop as a result of obstruction of seen in

a) Portal vein

b) Hepatic vein

c) Superior vena cava

d) Inferior vena cava

Correct Answer - C

Answer- C. Superior vena cava

Downhill varicesare produced by the obstruction of the superior vena cava, which results in collateral drainage from the head, neck and upper extremity venous systems into the veins surrounding the mid and upper thoracic esophagus and into the azygous vein. On CT varices appear as enhancing tubular regions in the periesophageal region. This density is equal to the venous blood pool.

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1266. Most common impacted foreign body in esophagus in children is

a) Coin

b) Food product

c) Krayon

d) Marble

Correct Answer - A
Answer- A. Coin
Coins are the most commonly impacted foreign bodies in children in esophagus and oropharynx followed by the food products

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1267. Which of the following is not true about medical management of uncomplicated GERD?

a) PPIs are the most effective drug treatment for GORD

b) Household measure of tilting the bed is efficatious

c) Long term PPI therapy increases risk of malignant changes

d) Adequate dose of PPI for 8 weeks is the recommended treatment

Correct Answer - C

Answer- C. Long term PPI therapy increases risk of malignant changes

Treatment-

1. Lifestyle modification with avoiding or cessation of smoking, tea/ coffee, alcohol.
2. Drugs-

- PPI- antisecretory drugs
- Antaacids with alginate
- Prokinetic- itopride (50mg TID) (Cisapride and mosapride not recommended as it causes cardiac arrhythmia)
- LES sphincter is relaxed by nitrates, atropine and calcium channel blocker.

3. Mucosa protective agents- sucralfate colloidal bismuth
4. Endotherapy- plexiglass minosphere (PMMA)
5. Surgery- antireflux surgery

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1268. Single drug regimen for carcinoma esophagus which shows significant decrease in tumor size in 15 - 20% of patients incorporates which drug?

a) Cisplatin

b) Bleomycin

c) Doxorubicin

d) Vincristine

Correct Answer - A

Answer- A. Cisplatin

Significant reductions in the size of measurable tumor masses have been reported in 15-25% of patients given single-agent cisplatin treatment and in 30-60% of patients treated with drug combinations that include cisplatin.

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1269. Most common type of Hiatal hernia is

a) Sliding

b) Rolling

c) Mixed

d) None of the above

Correct Answer - A
Answer- A. Sliding
There are 4 types of hiatal hernia
Type I : Sliding hernia (most common type - 70 - 80%)
Type II : Paraesophageal or rolling hernia
Type III : Mixed
Type IV : Tese hernias are distinguished by the presence of other abdominal viscera wihin the defect i.e. omentum, transverse colon.

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1270. In corrosive injury of esophagus correct statement is all except

a) Alkalis are usually ingested in larger volumes

b) Alkalis cause more gastic damage than acids

c) Alkalis form fibrous scar

d) Acids form eschar

Correct Answer - B

Answer- B. Alkalis cause more gastic damage than acids

In general, alkalis are relatively odourless and tasteless, making them more likely to be ingested in large volume.

Alkalis cause liquefaction, saponification of fats, dehydration and thrombosis of blood vessels that usually leads to fibrous scarring.

Acids cause coagulative necrosis with eschar formation, and this coagulant may limit penetration to deeper layers of the oesophageal wall.

Acids also cause more gastric damage than alkalis because of the induction of intense pylorospasm with pooling in the antrum.

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1271. An individual of age 40 yrs presents with dysphagia to both solids and liquids with symptoms of regurgitation. Patient also complaints of chest pain and weight loss. Which of the following is the preferred investigation for diagnosis of this pathology?

a) Barium swallow X-ray

b) Barium swallow X-ray with esophageal manometry

c) Barium swallow X-ray woith esophageal manometry with endoscopy

d) None of the above

Correct Answer - B

Answer- B. Barium swallow X-ray with esophageal manometry

Barium swallow- shows cucumber oesophagus or birds beak or pencil tip deformity.

Oesophageal manometry-

- Characteristics of achalasia cardia
- Hypertensive LOS
- Aperistalsis in the body of oesophagus
- Barium swallow shows a dilated esophagus with tapering narrowing in the terminal end of esophagus, described as ‘BIRD BEAK’ appearance.

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1272. Most accurate method for the diagnosis Gastroesophageal Reflux Disease (GERD) is

a) Histological study

b) Manometry

c) 24-hour pH recording and electrical impedance measurement

d) Barium swallow studies

e) Upper GI endoscopy

Correct Answer - C

Answer- C. 24-hour pH recording and electrical impedance measurement

- The most sensitive test for diagnosis of GERD is 24-h ambulatory pH monitoring.
- Endoscopy is indicated in patients with reflux symptoms refractory to antisecretory therapy; in those with alarming symptoms such as dysphagia, weight loss, or gastrointestinal bleeding; and in those with recurrent dyspepsia after treatment that is not clearly due to reflux on clinical grounds alone
- pH was less than 4

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1273. Which of the following tumors most commonly presents with upper gastrointestinal bleeding?

a) Primary gastric cancer

b) Esophageal carcinoma

c) Metastases to stomach

d) Hepatic adenocarcinoma

Correct Answer - A
Answer- A. Primary gastric cancer
Tumor bleeding accounts for up to 5% of upper gastrointestinal bleeding (UGIB) cases.

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1274. Which of the following is true about gastric ulcer but not the duodenal ulcer?

a) Pain rarely occurs at night

b) Melena is more common than hematemesis

c) Usually occurs in 40 - 50 yrs of age

d) Pain is relieved with ingestion of food

Correct Answer - A

Answer- A. Pain rarely occurs at night

Differential features of gastric and duddenal ulcers

Age	Usually 50 yr or older	Usually 40-50 yr
Gender	Mlae/Female ratio of 1.1:1:	Equal male/Female ratio
Blood group	No differentiation	Most often type 0
General nourishment	May be malnourished	Usually well nourishe
Stomach acid production	Normals secretion or hyposecretion	Hypersecretion
Occurrence	Mucosa exposed to acid-pepain secretion	Mucosa exposed to acid-pepsin secretion
Clinical course	Healing and recurrence	Healing and recurrence
Pain	Occurs 1/2- 1 hr after a meal; at night- rarely Accentuated by ingestion of food	Occurs 90 min-3 hr after a meal; at night : often awakens client between 1 and 2 am Relieved by ingestion of food
Response to treatment	Healing with appropriate therapy	Healing with appropriate therapy
Hemorrhage	Hematemesis more common than melena	Melena more common than hematemesis
Malignant change	Perhaps in les than 10%	Rare
Recurrence	Tends to heal and recurs often in the same location	60 % recur within 1 yr, 90% recur within 2 yr
Surrounding mucosa	Atrophic gastritis	No gastritis

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1275. The most commonly practiced operative procedure for a perforated duodenal ulcer is -

a) Vagotomy and pyloroplasty

b) Vagotomy and antrectomy

c) Vagotomy and perforation closure

d) Graham's omentum patch repair

Correct Answer - D
Ans. is 'd' i.e., Graham's omentum patch repair

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1276. Not true about highly selective vagotomy -

a) It is also known parietal cell vagotomy

b) Nerves of Latarjet are sacrifised

c) Recurrence rates are higher than vagotomy and drainage and vagotomy and antrestomy.

d) Entire gastric reservoir capacity is preserved

Correct Answer - B

Answer- B. Nerves of Latarjet are sacrifised

In Highly selective vagotomy (also known as parietal cell vagotomy or proximal gastric vagotomy) the vagal innervation to the antrum and pylorus (nerves of Latarjet) are preserved, only the vagal supply to the proximal two-thirds of stomach (where essentially all the parietal cells are located) is cut. This preserves gastric motility.

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1277. Simplest investigation to be performed in suspected cases of gastric cancer is -

a) Double contrast radiography

b) Plain radiography

c) CT Scan

d) Endoscopy

Correct Answer - C

Answer- C Ct scan

Investigation for diagnosis of gastric cancer:

* Ultrasound and CT scan
  - To rule out secondaries in the liver.
  - To look for enlarged coeliac nodes.
  - Can detect ascites-guided fluid tap and cell cytology.
  - To detect Krukenberg tumour (pelvic CT).
  - Useful in detecting metastatic disease.

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1278. The features of crohns disease are all except ?

a) Lymphoid hyperplasia

b) Skin lesion

c) Transmural involvement

d) Crypt Abscess

Correct Answer - A
Ans. is 'a' i.e., Lymphoid hyperplasia

- Intermittent mild **diarrhea, fever, abdominal** pain (MC)
- **Right lower quadrant mass**, weight loss, anemia
- Sometimes **mimics appendicitis** or bowel perforation
- Anal complaints (fissure, fistula, abscess) – frequent
- Fat/vitamin malabsorption present
- Recurrence after surgery common
- Malignancy (most common cause) + with colon involvement
- String sign of Kantor is seen in Crohn's Disease.
- Creeping fat is a feature of Crohn's Disease.

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1279. True about small intestinal tumor is -

a) Lymphomas are the most common small intestinal tumors

b) Carcinoids are more common in the duodenum and jejunum

c) Adenomatous polyps are more common in the terminal ileum

d) Risk of developing small bowel tumor correlates positively with colorectal cancer

Correct Answer - D

Answer- D. Risk of developing small bowel tumor correlates positively with colorectal cancer

The second most common small bowel tumor is carcinoid accounting for35% of all small bowel carcinomas, 90% of which are located in the ileum.

Lymphomas account for the third most common tumors of the small bowel.

Adenomatous polyps tend to occur in the periampullary region and proximal jejunum, close to the entrance of bile and pancreatic secretions into small intestine.

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1280. Contraindication for colostomy planning are all except -

a) Age > 60 yrs

b) Stoma near skin creases and bony prominences

c) Poorly motivated patient for elective stomy

d) Stomas through previous scars

Correct Answer - A
Answer- A. Age > 60 yrs
The patient must be explained the procedure and properly motivated for taking care of the stoma
The stoma should preferably be through rectus abdominis (to prevent prolapse and parastomal hernias)
It should be through flat surface of abdomen
It should avoid skin creases and bony prominences
It should be away from previous scars

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1281. Colonoscopy is are not indicated in -

a) MEN 2B

b) FAP

c) HNPCC

d) Cornkite canada syndrome

Correct Answer - A
Answer- A. MEN 2B
MEN 2B does not predispose to colon cancer.
FAP, HNPCC, Cronkite Canada Syndrome predispose to Colon Cancer and hence screening with colonoscopy is needed

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1282. Critical diameter of caecum when perforation is considered eminent in pseudo-obstruction is -

a) >7 cm

b) >8 cm

c) >9 cm

d) >10 cm

Correct Answer - C

Answer- C. >9 cm

It is defined as large bowel distention resulting from chronic impairment of motility.

The degree of colonic distention may be severe enough to cause caecal perforation.

Imminenet perforation of caecum is considered when the caecal diameter exceeds the critical diameter of 9cm (>9cm).

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1283. Exception to Goodsals rule is considered when the anterior external opening is more situated more than cms from anal margin -

a) 2

b) 3

c) 4

d) 5

Correct Answer - B
Answer- B. 3
Goodsall's Rule
Is used to determine the location of internal opening
According to it :

- Fistulas with external opening anterior to horizontal imaginary line drawn across the mid point of anus connect to the internal opening by short straight tract.
- Fistulas with external opening posterior to the horizontal line - run a curvilinear course and open internally into the posterior midline.

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1284. Treatment of choice for low fistula in ano is -

a) Fistulotomy

b) Intravenous antibiotics

c) Staged surgical resection

d) None of the above

Correct Answer - A

Answer- A. Fistulotomy

It is divided into 2 types - high & low, according to whether their internal openings is below or above the anorectal ring.

The importance of deciding whether a fistula is a low or a high type is that a low level can be treated by fistulotomy (opening the tract) without causing damage to the sphincter.

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1285. Staging of rectal carcinoma is best done by -

a) CT Scan

b) MRI

c) TRUS

d) All the above

Correct Answer - B
Answer-B
90% of rectal growths can be felt by per-rectal examination
High-resolution phased array external MRI is the **investigation of choice** for local issues in the primary **staging** of **rectal cancer (best investigation for staging)** as well as for restaging after NACT-RT. It provides the highest accuracy for issues in pretreatment local **staging**
Investigation of choice – rigid sigmoidoscopy and biopsy
To assess local spread – TRUS (Endoluminal ultrasound)
For local staging and assessment of proposed circumferential resection margin – MRI (CT is not accurate in local staging)

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1286. Rolled up omentum is seen in cases of -

a) Peritoneal tuberculosis

b) Peritoneal metastases

c) Perforation peritonitis

d) Malrotation of gut

Correct Answer - A

Answer- A. Peritoneal tuberculosis

The classic appearance of greyish white military nodules scattered over the peritoneum. In addition fibrous bands and adhesions are common.

The omentum may become thickened presenting as a transversely placed mass (rolled up omentum).

Clinically the most frequent presentation of the peritoneal disease is ascites.

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1287. Pantaloon hernia is also called as -

a) Dual hernia

b) Saddle bag hernia

c) Bochdaleks hernia

d) Retrosternal hernia

Correct Answer - B
Answer- B. Saddle bag hernia
It is also called dual or saddle bag hernia.
This type of hernia consists of two sacs that straddle the inferior epigastric artery, one sac being medial and the other lateral to this vessel.

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1288. Which of the following famous personalities had hydrocele associated with hernia, which proved to be fatal?

a) Edward Gibbon

b) Thomas Edison

c) Miley Wright

d) Neil Armstrong

Correct Answer - A
Answer- A. Edward Gibbon
Edward gibbon (1737-1794), english historian had large hydrocele. The hydrocele was associated with a large scrotal hernia which probably was punctured.

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1289. In case of female commonest hernia is ?

a) Direct inguinal hernia

b) Indirect inguinal hernia

c) Femoral Hernia

d) Incisional hernia

Correct Answer - B
Ans is 'b' ie Indirect Inguinal hernia

- In Indirect inguinal hernia the contents of the abdomen enter the deep inguinal ring and traverse the whole length of the inguinal canal to come out through the superficial inguinal ring.
- It is the ***most common*** of all forms of hernia.
- It is most common in the young *(cf a direct hernia is most common in the old)*
- *Femoral hernias occur most commonly in women but lower incidence overall than inguinal hernias.*

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1290. 40 years male presents with translucent scrotal swelling in which it is possible to get above the swelling on examination. What is the most probable diagnosis?

a) Hydrocele

b) Indirect inguinal hernia

c) Varicocele

d) Sebaceous cyst

Correct Answer - A

Answer- A. Hydrocele

Hydroceles are typically translucent and it is possible to 'get above the swelling' on examination of the scrotum.

A hydrocele is an abnormal collection of serious fluid in a part of the processus vaginalis, usually the tunica.

Encysted hydrocele of the cord is a smooth oval swelling near the spermatic cord, which is liable to be mistaken for an inguinal hernia. The swelling moves downwards and becomes less mobile if the testis is pulled gently downwards

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1291. Scrotal swelling non reducible but disappears when the child wakes up from sleep is most likely to be -

a) Congenital hydrocele

b) Varicocele

c) Indirect inguinal hernia

d) None of the above

Correct Answer - A

Answer- A. Congenital hydrocele

- In congenital hydrocele the communication with peritoneal cavity is usually too small to allow herniation of intra-abdominal contents.
- Usually hydrocele is a non reducible swelling but congenital hydrocele can passively get drained through intact tunics vaginalis due to gravity while sleeping.
- Both varicocele and indirect inguinal hernia are reducible scotal swelling.
- So the most probable answer is **Congenital hydrocele**

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1292. Treatment of congenital hydrocephalus is -

a) Ventriculoperitoneal shunt

b) Sterestactic radio surgery

c) Diuretics

d) Radiotherapy

Correct Answer - A
Answer- A. Ventriculoperitoneal shunt
Congenital Hydrocephalus - Treatment Options
1. Ventriculoperitoneal shunt
2. Endoscopic third ventriculostomy
3. Lumbar puncture (temporary measure till a shunt is put)

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1293. True of umbilical hernia -

a) Most common content is large intestine

b) Most of the umbilical hernias disappear spontaneously

c) Males are affected more than females

d) Uncomplicated herenias are repaired at 1 year of age through an infraumbilical incision.

Correct Answer - B

Answer- B. Most of the umbilical hernias disappear spontaneously

Umbilical hernia develops due to either absence of umbilical fascia or incomplete closure of umbilical defect in infants.

Umbilical hernia (paraumbilical hernia) is a protusion or herniation through linea alba just above or below umbilicus.

Weakest part is umbilical cicatrix.

Contents are- greater omentum, small intestine and transverse colon.

CLINICAL FEATURES-

- Females in 5th decade
- Swelling has smooth surface, distinct edges resonant with dragging pain.
- Expansile impulse on patient coughing
- Surgical treatment is indicated if
- Hernia persists at 2 years of age or older.
- If the defect is mor than 2 cm in size.
- If it is associate with complications.
- Heriorrhaphy (surgery for repair of hernia) is done through an infraumbilical incision. Defect is closed with interrupted sutures after ligating the sac.

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1294. A 10 years old male presents a smooth swelling near superficial inguinal ring, which moves downwards when the testicle is pulled downwards. Diagnosis -

a) Inguinal hernia

b) Congenital hydrocele

c) Encysted hydrocele of the cord

d) Varicocele

Correct Answer - C

Answer- C. Encysted hydrocele of the cord

A hydrocoele develops in a remnant of the processus vaginalis somewhere along the course of the spermatic cord. This hydrocoele also transilluminates, and is known as an encysted hydrocoele of the cord.

The swelling moves downwards and becomes less mobile if the testis is pulled gently downwards.

In females, a multicystic hydrocoele of the canal of Nuck sometimes presents as a swelling in the groin.

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1295. Physiological adhesions between foreskin and glans penis persist until years of age -

a) 4

b) 5

c) 6

d) 7

Correct Answer - C
Answer- C. 6
Phimosis is a condition in which the foreskin of the penis cannot be pulled back past the glans.
The physiological adhesions between the foreskin and the glans penis may persist until 6 years of age or more, giving the false impression that the prepuce will not retract.

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1296. Commonest site of hypospadias is -

a) Just proximal to glans

b) In the meid of penis

c) Scrotum

d) Perineum

Correct Answer - A
Answer- A. Just proximal to glans
Hypospadias is a condition in which the urethral meatus opens on the underside of penis or the perineum (i.e. ventral surface of penis) proximal to the tip of the glans penis.

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1297. Best time for surgery of hypospadias is at what age -

a) 0 - 4 months

b) 4 - 6 months

c) 6 - 10 months

d) > 2 years

Correct Answer - C

Answer- C. 6 - 10 months

Operations for hypospadiasis are routinely performed when the patient is between **6 and 18 months** of age.

The infant has good tolerance to surgery and anesthesia by the age of 6 months. The child is well aware of his genitalia and toilet training by the age of 18 months. So, the most suitable age for the operation of hypospadias is between 6 and 18 months.

The degree of hypospadias dictates the need for repair. If the opening is glanular or coronal (85% of patients), the penis is usually functional both for micturition and procreation and repair is done primarily for cosmetic reasons. Openings that are more proximal on the shaft require correction to allow voiding while standing, normal erection, and proper sperm deposition during intercourse.

The commonest procedure for **distal hypospadias is the 'tubularized incised plate' urethroplasty**, while techniques that utilize the foreskin are commonly used for more proximal hypospadias.

Complications of hypospadias surgery:

- **urethrocutaneous fistula (most common)**
- Recurrence of chordee
- Urethral stricture

- Meatal stenosis
- Infection

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1298. Which one of the following statement is true of undescended testis -

a) Usually descends spontaneously at puberty

b) Orchipexy to be done if no descent by puberty

c) Has a higher incidence of malignancy

d) Maintains normal sperm production

Correct Answer - C

Ans. is 'c' i.e., Has a higher incidence of malignancy

TREATMENT-

* Orchidopexy done before 6 months of age
* Orchidectomy- patient with incomplete descended testis is atrophic, past puberty and normal testis
* Ombredanne's operation in bilateral cases
* HCG or GnRH- cryptorchidism associated with hypogenitalism and obesity
* Approximately UDT spontaneously descend by 3 months of age
* Secondary sexual characterstics are normal

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1299. Most common site of penile carcinoma is -

a) Glans

b) Prepuce

c) Shaft

d) Coronal sulcus

Correct Answer - A

Answer- A. Glans

- When it occurs on the glans penis, it is known as erythroplasia of Queyrat and when it occurs on the shaft of the penis it is called Bowen's disease.
- Carcinoma of the penis is most typically a squamous cell carcinoma arising in the skin of the glans penis or the prepuce.
- MC orginates from glans > sulcus > prepuce > shaft

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1300. Which of the following are the treatment options for cystocele?

a) Anterior colporrhaphy

b) Transvaginal tape

c) Transobturator tape

d) All the above

Correct Answer - D
Answer- D. All the above
Traditionally; an anterior vaginal wall repair (anterior colporrhaphy) was performed vaginally; now replaced by vaginally inserted tape [transvaginal tape (TVT) or transobturator tape (TOT)] or mesh slings.

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1301. Traditionally scrotal carcinoma is associated with which of the following occupations?

a) Chimney sweeps

b) Mule spinners

c) Coal worker

d) Wood workers

Correct Answer - A
Answer- (A) Chimney sweeps
Carcinoma of the scrotum.
It is traditionally recognized as an occupational hazard for chimney sweeps and mule spinners.
It was described by Potts.
It was the first cancer linked to occupational exposure when, in 1775, Perivall Pott described it in chimney sweeps in England. Other occupations that had a preponderance of the disease included people who worked with the distillates of coal and men exposed to mineral oil.

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1302. What is the main hazard of ectopic testis -

a) Impotence

b) Carcinoma development

c) Liable to injury

d) Hernia development

Correct Answer - C
Answer- C. Liable to injury
The main hazard is liability to injury.

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1303. 40 years old male complains of loin pain since 1 month. Patient's complaint of pain has severely increased over last 2 hours and pain now radiates from loin and to groin and anterior thigh and patient is writhing in bed for comfort. What is the most probable etiology?

a) Bladder calculus

b) Ureteric calculus

c) Vesico ureteric reflux

d) Hydronephrosis

Correct Answer - B

Answer- B. Ureteric calculus

There is a pattern of severe exacerbation on a background of continuing pain

Radiates to the groin, penis, scrotum or labium as the stone progresses down the ureter

The severity of pain is not related to the size of the stone

The pain is almost invariably associated with haematuria

There may be few physical signs

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1304. Treatment of choice for bladder stone

a) Transurethral litholapaxy

b) Percutaneous suprapubic litholapaxy

c) Vesicotomy and stone retrieval

d) Intravenous antibiotics

Correct Answer - A

Answer- A. Transurethral litholapaxy

TREATMENT-

A transurethral cystolitholapaxy is the most common procedure used to treat adults with bladder stones.

- Small stone- Ultrasound lithotripsy
- Large stone- laser lithotripsy
- Litholapaxy- cystoscopic lithotrite
- Suprapubic cystolithotomy

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1305. Following are the sign/s suggestive of obstruction of urinary tract on CT Scan

a) Hyroureter

b) Perinephric stranding

c) Thickening of the lateroconal fascia

d) All the above

Correct Answer - D

Answer- D. All the above

Nonenhanced CT has been accepted as the imaging modality of choice in the radiologic evaluation of patients suspected of having urolithiasis.

CT is superior to other imaging modalities in the diagnostic accuracy and assessment of their characteristics.

The most direct sign of ureterolithiasis is the stone within the ureteral lumen, with proximal ureteral dilatation and normal distal caliber.

Other favorable secondary signs at CT are: Hydroureter, hydronephrosis, perinephric stranding, periureteral edema and unilateral renal enlargement.

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1306. Harder renal stone having less satisfactory results with ECWL is -

a) Oxalate stone

b) Phosphate stone

c) Urate stone

d) Cystine stone

Correct Answer - D

Answer- D. Cystine stone

Extracorporeal Shockwave Lithotripsy (ECWL):

- A urinary calculus has a crystalline structure. Bombarded with shock waves of sufficient energy it disintegrates into fragments.
- The clearance of stone from the kidney using ESWL will depend upon the consistency of the stone and its site.
- Most oxalate and phosphate stones fragment well.

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1307.

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Radical nephrectomy involves resection of the following except -

a) Gerotas fascia

b) Ipsilateral adrenal gland

c) Surrounding hilar lymph nodes

d) Proximal para-aortic lymph nodes

Correct Answer - D
Answer- D. Proximal para-aortic lymph nodes
The standard management for stage I or II tumors and selected cases of stage III disease is radical nephrectomy.
This procedure involves en bloc removal of Gerota's fascia and its contents, including the kidney, the ipsilateral adrenal gland, and adjacent hilar lymph nodes.

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1308. Normal urine flow rate in healthy adults in urodynamic study is -

a) 10 ml/sec

b) 20 ml/sec

c) 25 ml/sec

d) 5 ml/sec

Correct Answer - B
Answer- B. 20 ml/sec
Ages 14 to 45 -- The average flow rate for males is 21 mL/sec. The average flow rate for females is 18 mL/sec.
Ages 46 to 65 -- The average flow rate for males is 12 mL/sec. The average flow rate for females is 18 mL/sec.
Ages 66 to 80 -- The average flow rate for males is 9 mL/sec. The average flow rate for females is 18 mL/sec.

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1309. Dermoepidermal burn is what degree of burn -

a) I

b) II

c) III

d) IV

Correct Answer - B
Answer- B. II
Dermoepidermal burns are Superficial II degree burns.

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1310. Revascularization and angiogenesis process after skin grafting is seen after how many days after the procedure?

a) 4

b) 5

c) 6

d) 7

Correct Answer - B

Answer- B. 5

Revascularization or angiogenesis

- After approx 5 days, revascularization occurs and the graft demonstrates both arterial inflow and venous outflow.

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1311. The most commonly used myocutaneous pedicle graft for pelvis surgeries contains muscle segments from -

a) Rectus abdominis muscle

b) External oblique muscle

c) Internal oblique muscle

d) Transversus abdominis muscle

Correct Answer - A

Answer- A. Rectus abdominis muscle

The most frequently used myocutneous pedicle grafts contain, muscle segments from the rectus abdominis muscle of the anterior abdominal wall, gracialis muscle of the inner thigh, bulbocavernosus muscle of the vulva, the tensor fascia lata muscle of the lateral thigh, and gluteus maximus muscle.

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1312. Kernahen's striped 'Y' classification, Main reference point is -

a) Incisive foramen

b) Soft palate

c) Hard palate

d) Third molar

Correct Answer - A
Answer- A. Incisive foramen
Kernahen's striped 'Y' classification
It is used to classify cleft lip and cleft palate
The incisive foramen is taken as reference point

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1313. LAHSAL code is used to represent congenital malformation of -

a) Lip

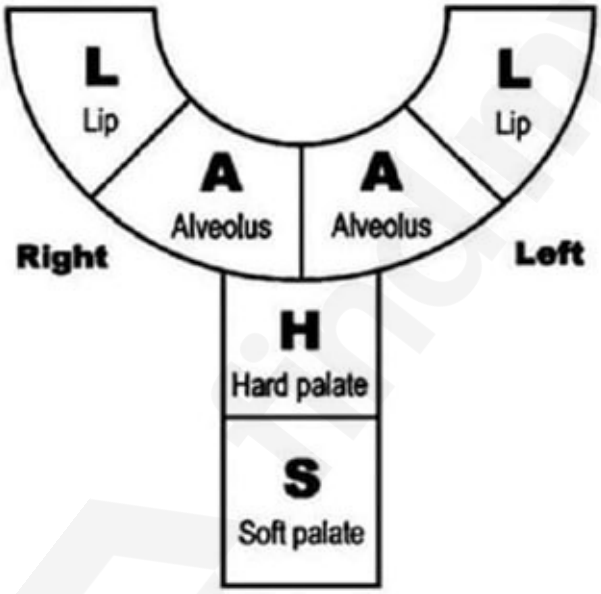
b) Alveolus

c) Hard and soft palate

d) All the above

Correct Answer - D

Answer- D. All the above



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1314. What is the meaning of the French word "Debridement"

a) Unleash or Cut Open

b) Debulk

c) Sanitize

d) Rehydration

Correct Answer - A
Answer- A. Unleash or Cut Open
Taken from the French meaning to 'unleash or cut open', debridement has come to mean more than simply the laying open of tissues. It plays a crucial part in the management of trauma.

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1315. Cardinal rule for dressing of pressure ulcer is to -

a) Keep ulcer tissue dry and surrounding intact tissue dry

b) Keep ulcer tissue dry and surrounding intact tissue moist

c) Keep ulcer tissue moist and surrounding intact tissue dry

d) Keep the ulcer tissue moist and surrounding intact tissue moist

Correct Answer - C

Answer- C. Keep ulcer tissue moist and surrounding intact tissue dry

An ideal dressing should protect the wound, be biocompatible and provide ideal hydration.

The type of the ulcer bed and the desired dressing function determine the type of dressing needed.

The cardinal rule is to keep the ulcer tissue moist and the surrounding intact tissue dry.

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1316. Outcome of burns depends on -

a) Extent of burns

b) Type of resuscitation fluid

c) Maintenance of airway

d) Skin grafting

Correct Answer - A

Answer- A. Extent of burns

The various factors influencing the outcome of burns are :

- Extent of burns
- Depth of burns
- Timing of first Escharectomy (removes devitalized tissue and hence source of infection)
- Age and medical comorbidities

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1317. All of the following are true regarding fluid resuscitation in burn patients except:

a) Consider intravenous resuscitation in children with burns greater than 15% TBSA

b) Oral fluids must contain salts

c) Most preferred fluid is Ringer's lactate

d) Half of the calculated volume of fluid should be given in first 8 hours

Correct Answer - A

Ans. A: Consider intravenous resuscitation in children with burns greater than 15% TBSA

In children with burns over 10% TBSA and adults with 15% TBS, consider the need for intravenous fluid resuscitation.

If oral resuscitation is to be commenced, it is important that the water given is not salt free.

Preferred fluid: Lactated Ringer's Solution, because it is:

* Isotonic
* Cheap
* Easily stored

- Resuscitation formulas: Parkland formula most commonly used
- Fluid calculation: 4 x weight in kg x %TBSA burn
- Give 1/2 of that volume in the first 8 hours. Give other 1/2 in next 16 hours
- TBSA: Total burns surface area.

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1318. The best treatment for cystic hygroma is -

a) Surgical excision

b) Radiotherapy

c) Sclerotherapy

d) Chemotherapy

Correct Answer - A
Ans. is 'a' i.e., Surgical Excision
Definitive treatment is complete excision of the cyst at an early age.

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1319. A patient after road traffic accident presented with tension pneumothorax. What is the first line of management?

a) Insert wide bore needle in 2nd intercostal space

b) Immediate chest X-ray

c) CT scanEmergency thoracotomy

d) Emergency thoracotomy

Correct Answer - A

Answer- A. Insert wide bore needle in 2nd intercostal space

- First line of management in tension pneumothorax: Insert wide bore needle in 2nd intercostal space.

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1320. Preferred treatment for oral tongue carcinoma which infiltrates the local cortical bone is -

a) Subtotal glossectomy

b) Subtotal glossectomy + selective neck dissection

c) Subtotal glossectomy + selective neck dissection + mandibulectomy

d) Total glossectomy + selective neck dissection + mandibulectomy

Correct Answer - C

Answer- C. Subtotal glossectomy + selective neck dissection + mandibulectomy

- The management plan for locally advanced tongue carcinomas includes subtotal glossectomy + selective neck dissection + mandibulectomy.
- Advanced tumors (T3 and T4) often encroach upon the floor of the mouth and, occasionally, the mandible.
- In these circumstances, a resection of the tongue and floor of the mouth and mandible is required.

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1321. For lower lip carcinoma of <1cm in size. The treatment of choice will be-

a) Radiation

b) Chemotherapy

c) Excision

d) Radiation and chemotherapy

Correct Answer - C

Answer- C. Excision

- Small tumors (T1 & T2) (<2cm) - If 1/3rd or less than 1/3rd lip involved- V or W-shaped excision + primary closure.
- Excision of lower lip upto 1/3rd can be sutured primarily in 3 layers – mucosa, muscle, and skin keeping vermillion border in proper apposition.

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1322.

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Upto Level III lymph node dissection is done for which nodal status of oropharyngeal cancer?

a) N1

b) N2

c) N3

d) N4

Correct Answer - A

Answer- A. N1

Management of neck

NO Selective neck dissection

Oral Cavity	at least levels I-III
Oropharynx	at least levels II-IV
N1-N2a-c	Selective or comprehensive neck
Level VI	Subglottic laryngeal cancers

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1323. Hoarseness of voice in lung carcinoma is due to invasion of which structure?

a) Recurrent laryngeal nerve

b) Internal laryngeal nerve

c) Glossopharyngeal nerve

d) Vagus nerve

Correct Answer - A
Answer- A. Recurrent laryngeal nerve
Hoarseness- Recurrent laryngeal nerve invasion

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1324. Acral lentigines type of malignant melanoma occurs in -

a) Face

b) Nape of neck

c) Mucosa

d) Sun exposed areas

Correct Answer - C
Answer- C. Mucosa
Acral lentiginous-

- Least common with worst prognosis
- MC site- sole, mucosa

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1325. Which of the following provides excellent details about the chemodectomas?

a) Xray

b) CT angiography

c) MRI

d) PET SCAN

Correct Answer - C
Answer- C. MRI
MRI scanning provides excellent detail in most cases of chemodectomas.

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1326. Hemorrhage commonly seen with trivial trauma in elderly -

a) Subdural hemorrhage

b) Extradural hemorrhage

c) Subarachnoid hemorrhage

d) Intraparenchymal hemorrhage

Correct Answer - A
Answer- A. Subdural hemorrhage
Subdural hemorrhage frequently occurs in older adults, after apparently trivial trauma and is often related to a fall in which there is no direct trauma to the head.
Recurrent trivial trauma in elderly is the most common cause of subdural hemorrhage developing.

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1327. Most common organ injured in penetrating injury of the abdomen:

a) Liver

b) Spleen

c) Small bowel

d) none of these

Correct Answer - C
Ans- C- Small Bowel

- The most common cause is a stab or gunshot.
- The most common organs injured are the small bowel (50%), large bowel (40%), liver (30%), and intra-abdominal vascular (25%).
- When the injury is close range, there is more kinetic energy than those injuries sustained from a distance. Even though most gunshot wounds typically have a linear projection, the high-energy wounds are associated with unpredictable injuries.
- There may also be secondary missile injuries from bone or bullet fragments. Stab wounds that penetrate the abdominal wall are difficult to assess.

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1328. Indication for surgical compartment release in compartment Syndrome in any compartment is absolute pressure greater than?

a) 15 mm Hg

b) 20 mm Hg

c) 30 mm Hg

d) Varies from compartment to compartment

Correct Answer - C
30 mm Hg REF: With text
"Setting the threshold for fasciotomy at a perfusion pressure of 30 mmHg can be considered safe, but still may lead to overtreatment if used routinely" REF: Evidence-based Orthopedics - Mohit Bhandari Page 634
Different authors consider surgical intervention if: (REF: Tiwari A, Haq A I, Myint F, Hamilton G. Acute compartment syndromes. Br *J Surg* 2002; 89: 397-412.)
1. Absolute ICP greater than 30 mmHg
2. Difference between diastolic pressure and ICP greater than 30 mmHg
3. Difference between mean arterial pressure and ICP greater than 40 mmHg

"Intracompartmental pressure may be measured by the wick catheter in patients suspected to have compartment syndrome. By such method a pressure of 30 mm Hg or more sustained for 6-8 hours or more is a likely indication for decompressive fasciotomy" REF: Skeletal injury in the child by John Anthony Ogden Page 317

Intracompartmental pressure	Comments
<15 mm Hg	Normal compartment pressure of lower limbs
>25 mm Hg	Venous drainage from closed myofascial spaces is impaired.
>30 mm Hg	Complete venous collapse
>60 mm Fig	Neuromuscular ischemia

REF: Mastery of vascular and endovascular surgery - Gerald B. Zelenock, Thomas S. Huber, Louis M. Messina Page 507

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1329. A child swallowed a watch battery containing alkaline content. What next -

a) Immediate X-ray measurements

b) Remove surgically immediately

c) CT abdomen

d) Laxatives

Correct Answer - A
Answer- A. Immediate X-ray measurements
Alkaline dry cell batteries contain :

- Sodium hydroxide
- Potassium hydroxide

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1330. Burr hole is done for -

a) Chronic SDH

b) EDH

c) SAH

d) Contusion

Correct Answer - A
Answer- A. Chronic SDH
Liquefied SDHs are commonly treated with drainage through one or two burr holes placed over the thickest aspects of the hematoma. Many surgeons place frontal and parietal burr holes that later can be incorporated into a frontotemporoparietal craniotomy, if needed.

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1331. Typical of rectus sheath hematoma is -

a) Severe tenderness

b) Bluish discoloration

c) Firm painful mass

d) Ecchymosis

Correct Answer - C

Answer- C. Firm painful mass

Clinical features of rectus sheath hematoma

A) Symptoms

- Common historical features of rectus sheath hematoma (RSH) include acute abdominal pain, fever, nausea, and vomiting.

B) Signs

i) Vital signs

- A low-grade fever is common in rectus sheath hematoma. The hematoma can be large enough to compromise intravascular volume, with resultant signs of hypovolemic shock including hypotension, tachycardia, and tachypnea.

ii) Abdominal examination

- Typically, the abdominal examination reveals a palpable, painful, firm, nonpulsatile abdominal mass corresponding to the rectus sheath. The mass may be bilobar with a central groove. The mass does not move with respiration. Because the hematoma is deep to the subcutaneous tissue and rectus muscles, the mass is not always palpable, particularly in obese patients.

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1332. Percuteneous chemical lumbar sympathectomy is practised using -

a) Phenol

b) Ethanol

c) Formalin

d) Acetic acid

Correct Answer - A
Answer- A. Phenol
Chemical sympathectomy requires the injection of small quantities of dilute aqueous phenol into the lumbar sympathetic chain under radiographic control.

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1333. Which of the following is spared in lumbar sympathectomy:
September 2009

a) L1

b) L2

c) L3

d) L4

Correct Answer - A
Ans. A: Ll
To preserve sexual functions, Ll is preserved.

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1334. Most commonly performed and acceptable method of bariatric surgery is:

a) Biliopancreatic diversion

b) Biliopancreatic diversion with ilcostomy

c) Laparoscopic gastric banding

d) Roux-en-Y gastric bypass.

Correct Answer - D

Ans: D. Roux-en-Y gastric bypass.

(Ref. Sabiston 20/e p1187, 19/e p363; Schwartz 10/e p1112, 9/952; Harrison 19/p2398).

Roux-en-Y gastric bypass:

- Most commonly performed & acceptable method of bariatric surgery.

3 restrictive-malabsorptive bypass procedures:

- Combine elements of gastric restriction & selective malabsorption.
- Procedures include Roux-en-Y gastric bypass, biliopancreatic diversion & biliopancreatic diversion with duodenal switch.

Roux-en-Y:

- Most commonly undertaken & most accepted bypass procedure.
- Performed with an open incision or by laparoscopy.

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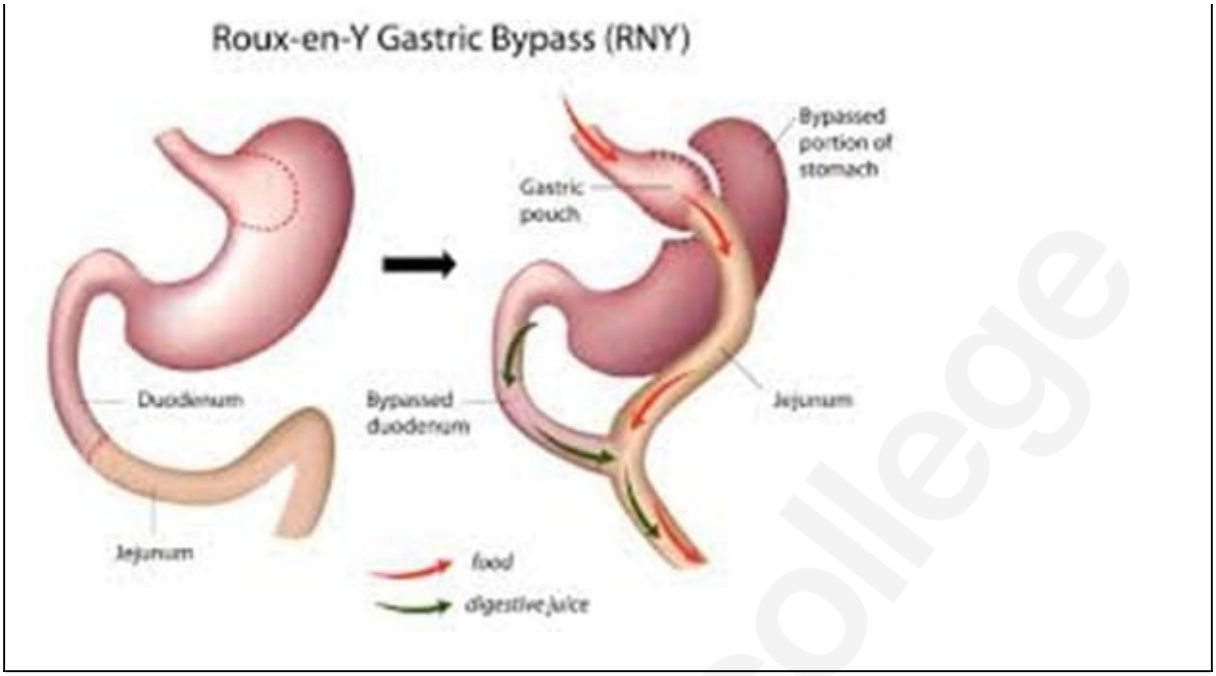

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1335. Which of the following electrolyte abnormalities can be seen after brain injury?

a) Hyponatremia

b) Hyperkalemia

c) Hypomagnesemia

d) All the above

Correct Answer - A
Answer- A
Electrolyte abnormalities occur in 60% of the patients with head injury.
Patients with **brain injury** are at a high risk for the development of **electrolyte imbalance** including **hyponatremia**, hypocalemia, hypophosphatemia as well as **hypokalemia** and (to a lesser degree) Hypomagnesemia.
So the appropriate answer will be hyponatremia.

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1336. Neuroimaging features of neurocysticercosis are considered as criteria for definitive diagnosis -

a) Major

b) Minor

c) Probable

d) Absolute

Correct Answer - A
Answer- A. Major
Evidence of lesions highly suggestive of neurocysticercosis on neuroimaging studies
Positive serum immunoblot for the detection of anticysticercal antibodies
Resolution of intracranial cystic lesions after therapy with albendazole or praziquantel
Spontaneous resolution of small single enhancing lesions.

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1337. Features of marasmus are all except :

a) Absence of anasarca

b) Increased appetite

c) Excessive catabolism of adipose tissue and muscle protein

d) Uncompensated phase of PEM

Correct Answer - D
Answer- D. Uncompensated phase of PEM
It is due to prolong deficiency of calories and proteins. Thus there is exessive catabolism of adipose tissue and muscle protein.
It is characterized by gross wasting of muscle and subcutaneous tissues resulting in emaciation and marked stunting.
Child may show voracious appetite.
Marasmus represents the compensated phase of PEM.

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1338. All of the following are causes of pseudoparalysis except

a) Osteomyelitis

b) Scurvy

c) Septic arthritis

d) Polio

Correct Answer - D
Answer- D. Polio
Causes of pseudoparalysis
1. Scurvy (vitamin C deficiency)
2. Osteomyelitis
3. Septic (arthritis)
4. Congenital syphilis

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1339. Which of the following can lead to regression of developmental milestones

a) Rett's syndrome

b) Autism

c) Neuromuscular diseases

d) All of the above

Correct Answer - D
Answer- D. All of the above
The hallmark of many degenerative disorders is neurological regression.
Loss of only language skills – autism – suspected.
Regression of both language and motor milestones → Rett's syndrome.

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1340. All of the following are features of Rett's syndrome except

a) Microcephaly

b) Regression of milestones

c) Cardia arrhythmias

d) Focal Convulsions

Correct Answer - D

Answer- D. Focal Convulsions

This is the characteristic features, that they begin to loose their acquired skills, e.g., cognitive and head growth is normal during early period after which there is an arrest of growth.

Acquired microcephaly (Decleration of head growth due to significantly reduced brain weight).

Most children develop peculiar sighing respirations with intermittent periods of apnea that may be associated with cyanosis -4 Breath holding spells.

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1341. Child while playing has sudden loss of consciousness and appears pale. There is no significant medical history and the child was otherwise healthy. Which of the following is the most probable diagnosis?

a) Attention deficit hyperkinetic disorder

b) Breath holding spell

c) Autism

d) Rett's syndrome

Correct Answer - B

Answer- B. Breath holding spell

Pallid form (Pallid spells)

- These are initiated by painful experience, e.g falling and striking the head.
- Pallid spells are due to excessive central parasympethetic activity.
- Clinical features include pallor, apnea, loss of consciousness, hypotonia, seizures and bradycarda.
- Treatment includes support and reassurance of parents. Atropine may be used in refractory cases

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1342. Infantile body proportion in adults is seen in all except-

a) Achondroplasia

b) Hypothyroidism

c) Klinefelter's syndrome

d) Cretinism

Correct Answer - C
Answer- C. Klinefelter's syndrome
Infantile type body porportion

- Achondroplasia
- Juvenile myxedema (hypothyroidism)
- Cretinism

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1343. If chronological age > skeletal age with normal growth velocity, then the final height that is expected to be achieved is

a) Normal

b) Less because of small bones

c) More than expected

d) Less because of epiphyseal closure due to accelerated growth velocity

Correct Answer - A

Answer- A. Normal

If the growth velocity is normal but the chronological age is more than the bone age, then the diagnosis is Constitutional delay in growth.

Constitutional delay in growth

- It is the most common cause of short stature in mid childhood period but the ultimate height is normal.
- Their birth weight and height are normal. Strong family history of parents having short stature in childhood with delay in onset of puberty is usually present.

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1344. Which of the following about hormone levels in a malnourished child is true?

a) Increased insulin levels

b) Decreased cortisol levels

c) Increased growth hormone

d) All of the above

Correct Answer - C
Answer- C. Increased growth hormone
changes in PEM

- Decreased insulin levels
- Increased cortisol
- Increased growth hormone

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1345. A 9 month old child with respiratory rate 53/min and presence of cough is classified as :

a) SIRS

b) Respiratory distress

c) Tachypnoea

d) ARDS

Correct Answer - C

Answer- C. Tachypnoea

Tachypnea (fast breathing) : Fast breathing is defined as:

1. less than 2 months of age -> 60 breaths per minute
2. Child aged 2 months upto 12 months - 50 breaths per minute
3. Child aged 12 months upto 5 years - 40 breaths per minute

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1346. A newborn after prolonged labour is not breathing well and after 30 seconds of receiving 100% oxygen by bag and mask, heart rate is 88 beats per min, what is the next step in management?

a) Discontinue oxygen and ventilation

b) Discontinue oxygen, continue ventilation

c) Continue oxygen and ventilation

d) Start chest compressions

Correct Answer - C

Answer- C. Continue oxygen and ventilation

After the infant has received 30 seconds of ventilation with 100% oxygen by bag and mask, evaluation of heart rate should be done -

- HR >100 → Discontinue ventilation if spontaneous respiration is present.
- HR 60 to 100 → Continue ventilation
- Below 60 → Continue ventilation + chest compressions

After 30 seconds of chest compressions, the heart rate is checked.

- HR < 60 → Continue chest compression and bag & mask ventilation + initiate medications.
- HR > 60 → Discontinue chest compression but continue bag & mask ventilation until the heart rate is above 100.

[Ref: O.P.Ghai 7th/e p. 98]

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1347. How are chest compressions given in a newborn?

a) Using palm on the lower third of sternum

b) Using two fingers on the middle third of sternum

c) Using the two thumbs on the lower third of sternum

d) Using three fingers on the lower third of sternum

Correct Answer - C

Answer- C. Using the two thumbs on the lower third of sternum

Two - finger technique

- The tips of the middle finger and either the index finger or ring finger of one hand are used to compress the sternum.
- The other hand is used to support the infant's back, unless the infant is on a very firm surface.

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1348. Contraindication of bag and mask ventilation are all of the following except:

March 2009

a) Tracheo-esophageal fistula

b) Hiatus hernia

c) Pregnancy

d) Empty stomach

Correct Answer - D

Ans. D: Empty Stomach

Bag-mask ventilation can produce gastric inflation with complications, including regurgitation, aspiration, and pneumonia.

Conditions predisposing to aspiration are:

- Full stomach patients
- Hiatus hernia, pregnancy
- Intestinal obstruction
- Tracheo-esophageal fistula
- Meconium aspiration syndrome

Gastric inflation can elevate the diaphragm, restrict lung movement, and decrease respiratory system compliance

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1349. Grasp reflex develops by -

a) 20 weeks

b) 24 weeks

c) 28 weeks

d) 32 weeks

Correct Answer - C
Ans. is 'c' i.e., 28 weeks

- Reflex- Age of appearance 32 - Age of disappearance (after birth)

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1350. Asymmetric tonic neck reflex disappears at what age?

a) 2 months

b) 3 months

c) 6 months

d) 8 months

Correct Answer - C
Answer- C. 6 months
Assymmetic tonic neck- wks of gestation 4-6 → 6-7 months

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1351. True about tonic neck reflex is

a) Extension of arm on ipsilateral side, flexion on contralateral side

b) Extension of arm on contralateral side, flexion on ipsilateral side

c) Extension of arms on both sides

d) Flexion of arms on both sides

Correct Answer - A

Answer- A. Extension of arm on ipsilateral side, flexion on contralateral side

The tonic neck reflex is produced by manually rotating the infant's head to 1 side and observing for the characteristic fencing posture (extension of the arm on the side to which the face is rotated and flexion of the contralateral arm).

An obligatory tonic neck response, in which the infant becomes "stuck" in the fencing posture, is always abnormal and implies a CNS disorder.

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1352. **Withdrawal reflex is an example of which of the following?**

a) Monosynaptic reflex

b) Polysynaptic reflex

c) Both A and B of the above

d) None of the above

Correct Answer - B
The withdrawal reflex is a typical polysynaptic reflex that occurs in response to a usually painful stimulation of the skin or subcutaneous tissues and muscle.
When a reflex arc consists of only two neurons in an animal (one sensory neuron, and one motor neuron), it is defined as monosynaptic. **Monosynaptic** refers to the presence of a single chemical synapse. In the case of peripheral muscle reflexes (patellar reflex, achilles reflex), brief stimulation to the muscle spindle results in contraction of the agonist or effector muscle.
In **polysynaptic reflex** pathways, one or more interneurons connect afferent (sensory) and efferent (motor) signals. All but the most simple reflexes are polysynaptic, allowing processing or inhibition of polysynaptic reflexes within the brain.

Ref: Ganong's Review of Medical Physiology 23rd edition, Chapter 9.

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1353. Closure of patent ductus arteriosus is stimulated by?

a) Prostaglandin F2a

b) Cycloxygenase

c) Increase in 02 tension at birth

d) Hypercarbia

Correct Answer - C

Answer- C. Increase in 02 tension at birth

The mechanism producing the initial constriction of ductus arteriosus is not completely understood, but the increase in arterial 02 tension plays an important role.

One more factor which helps in closure of the ductus arteriosus is the decrease in concentration of prostaglandins at the time of birth.

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1354. False about PDA is

a) More common in females

b) Anatomical closure takes 21 hours after birth

c) PGE maintains patency of ductus

d) Dilatation of ascending aorta

Correct Answer - B

Answer- B. Anatomical closure takes 21 hours after birth

Patent ductus arteriosus is a communication between the pulmonary artery and aorta.

'Functional closure' takes place within 15 hours of birth. 'Anatomic closure' of ductus arteriosus occurs 10-21 days after birth.

Prostaglandins maintain the patency of ductus.

The persistence of function of ductus arteriosus beyond 24 hours after birth is considered as PDA in term neonate, i.e. if functional closure does not take place in 24 hours after birth, it is considered as PDA.

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1355. Which of the following is not seen in patent ductus arteriosus?

a) Left atrial hypertrophy

b) Left ventricular enlargement

c) Continuous murmur

d) Attenuated SI

Correct Answer - D

Answer- D. Attenuated SI

Increased flow after passing through lung reaches the left atrium and causes volume overload → Left atrial dilatation and hypertrophy.

Increased blood volume passes from left atrium to left ventricle through mitral valve, i.e., increased flow through mitral valve → Accentuation of S1 and delayed diastolic murmur.

Left ventricle receives larger amount of blood that results in volume overload → Left ventricle enlargement.

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1356. Which of the following congenital anomalies leads to heart failure at birth?

a) Total anomalous pulmonary venous connection

b) Transposition of great arteries

c) Pulmonary atresia

d) Coarctation of aorta

Correct Answer - C
Answer- C. Pulmonary atresia
Timing of CHF in congenital heart diseases- Pulmonary, mitral and aortic atresias
Hypoplastic left and right heart syndromes, transposition and malposition of great ate ries.

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1357. The following features are true for tetralogy of Fallot, except -

a) Ventricular septal defect

b) Right ventricular hypertrophy

c) Atrial septal defect

d) Pulmonary stenosis

Correct Answer - C
Ans. is 'c' i.e., ASD
Tetralogy of Fallot
* The classical example of cyanotic patients with pulmonic stenosis is tetralogy of fallot.
* TOF is the commonest congenital heart disease.
* Constituents of TOF

Ventricular septal defect	Overriding or dextroposed aorta
Pulmonic stenosis	Right ventricular hypertrophy.

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1358. Most important prognostic marker of tetralogy of fallot

a) VSD

b) Pulmonary stenosis

c) Overriding of aorta

d) Right ventricular hypertrophy

Correct Answer - B
Answer- B. Pulmonary stenosis
Tetrology of fallot has 4 components:
1. Obstruction to right ventricular outflow (pulmonary stenosis),
2. A mal-alignment type of ventricular septa] defect (VSD),
3. Dextro position of the aorta so that it overrides the ventricular septum, and
4. Right ventricular hypertrophy

[Ref Nelson 20th le p. 2211]

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1359. Microcephaly is common in children of mothers with all except

a) Alcohol intake

b) Warfarin intake

c) Warfarin intake

d) Varicella

Correct Answer - B

Answer- B. Warfarin intake

Secondary

- Structural defects : Neural tube defects (anencephaly, encephalocele).
- Metabolic disorders : Rhenylketonuria, citrullinemia, methylmalonic aciduria.
- Congenital infections : Rubella, CMV, HSV, toxoplasmosis, syphilis, varicella.
- Teratogens : Alcohol, tobacco, cocaine, heroin.
- Others : Maternal diabetes, maternal phenylketonuria, hypothyroidism, hypopituitrism, adrenal insufficiency.

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1360. **Which of the following statement is true for physiological jaundice in neonate?**

a) Occurs in the first 6 hours of delivery

b) Neurological sequelae are common

c) Best treated by phototherapy

d) Starts on 2nd day of life

Correct Answer - D
Most neonates develop visible jaundice due to elevation of unconjugated bilirubin concentration during their first week.
This common condition is called Physiological jaundice.
It lasts for 5 days in term infants & 7 days in preterm infants.
It doesnot require any treatment & disappers spontaneously. In pathological jaundice clinical jaundice will appear in the first 24hrs of life.
Ref: Nelson, 18th Edition, Pages 760-761; O P Ghai, 6th Edition, Pages 170-171.

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1361. What is the capacity of stomach at birth

a) 5 ml

b) 25 ml

c) 50 ml

d) 100 ml

Correct Answer - C
Answer- C. 50 ml
Day 1 5 - 7 ml. Size of cherry
Day 3 22 - 27 ml. Size of walnut
One week 45 - 60 ml. Size of an apricot
One month 80 - 150 ml. Size of a large egg

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1362. Colour of stools in breastfed new born is -

a) Red

b) Green

c) Black

d) Golden

Correct Answer - D

Answer- D. Golden

Colour of stools in neonate

- Meconium (first stool) is passed within 24 hours. After that meconium stools (black tarry) can be passed upto 3 days.
- On 4th-5th days transitional stools (greenish) are passed. After 5 days regular milk stools (golden yellow) are passed.
- There is golden discoloration of stool.

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1363. Trigonocephaly is due to premature closure of which suture?

a) Sagittal suture

b) Metopic suture

c) Lambdoid suture

d) Coronal suture

Correct Answer - B
Answer- B. Metopic suture
Trigonocephal- Metopic suture
Keel shaped forehead

- Hypotelorism
- Abnormalities of forebrain

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1364. **Which of the following is a marker for neural tube defects?**

a) ↑Phosphatidylesterase

b) ↑Pseudocholinesterase

c) ↑Acetylcholinesterase

d) ↑Butyrylcholinesterase

Correct Answer - C
Neural tube defects are associated with high levels of Acetylcholinesterase.

Ref: Genetic disorders and Fetus, 4th Edition, Page 673; Ian Donald's Practical Obstetric Problem By Renu Misra, 6th Edition, Page 44
* In intra embryonic life, neural tube is open at both end and freely communicate with amniotic cavity. Failure of closure of neural tube results in persistent of this communication. This allows excretion of following fetal substances into amniotic cavity ?
- Alpha - fetoprotein
- Acetylcholinesterase
* These serve as biochemical markers for NTDs for prenatal diagnosis.

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1365. **Meconium ileus is associated with:**

a) Cystic fibrosis

b) Infant of diabetic mother

c) Hypothyroidism

d) None of the above

Correct Answer - A
Infants with cystic fibrosis have characteristic pancreatic enzyme deficiencies and abnormal chloride secretion in the intestine that result in the production of viscous, water-poor meconium.

Meconium ileus occurs when this thick, highly viscous meconium becomes impacted in the ileum and leads to high-grade intestinal obstruction.

Ref: Schwartz's principle of surgery 9th edition, chapter 39.

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1366. RDA of zinc in a child ?

a) 10 mg

b) 20 mg

c) 6-8 mg

d) 4-5 mg

Correct Answer - C
Ans. is 'c' i.e., 6-8 mg
RDA of Zinc in children

- 1 - 3 years —> 3mg
- 4 - 8 years -5 5 mg
- 9 years and above (male) —> 8 - 11 mg
- 9 years and above (female) --> 8 mg

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1367. Which of the following is not a feature of Minimal change disease?

a) Hypertension

b) Edema

c) Proteinuria

d) Responsive to steroid therapy

Correct Answer - A

Answer- A. Hypertension

Minimal Change Disease is the most common cause of Nephrotic syndrome in children.

Edema and Selective proteinuria are features of nephrotic syndrome. Fever may be present on account of increased susceptibility to infection.

Minimal change disease prsents with insidious onset of nephrotic syndrome in children below 6 years of age.

Hypertension is not a feature of nephrotic syndrome and is rare in Minimal change disease.

Hematuria (a finding of nephritic syndrome) is also rare.

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1368. **Which of the following drugs is useful in the prophylaxis of migraine?**

a) Propranolol

b) Sumatriptan

c) Domperidone

d) Ergotamine

Correct Answer - A

Drugs such as topiramate, valproate, propanolol, timolol, candesartan, verapamil and amitryptilline are indicated in migraine prophylaxis.

Migraine prophylaxis is indicated when migraine headaches occur more than two or three times a month or when it is associated with significant disability. After initiation of therapy,it should be continued for several months. Once the patient remains headache free, the dose is tapered and the drug is eventually withdrawn. Botulinum toxin type A was approved by the US Food and Drug Administration (FDA) for migraine prevention in late 2010.

Ref: Current Medical Diagnosis and treatment 2012, Chapter 24

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1369. Drug of choice for infantile spasm is?

a) Vigabatrin

b) Adrenocorticotropic hormone (**ACTH**)

c) Ethosuximide

d) Carbamazepine

Correct Answer - A
Ans. 'a' i.e., Vigabatrin
Vigabatrin (drug of choice), ACTH (2nd choice) and corticosteroids are used for *treatment.*

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1370. What is the rate of CSF formation in children?

a) 0.3 ml/min

b) 1 ml/min

c) 3 ml/min

d) 20 ml/min

Correct Answer - A
Answer- A. 0.3 ml/min
The rate of CSF formation in children and adults is :-

- 0.3 to 0.4 ml/min OR
- 18 to 20 ml/hour

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1371. Most common cause of cranial irradiation in children is

a) Small cell lung Ca

b) ALL

c) AML

d) Craniopharyngioma

Correct Answer - B
Answer- B. ALL
ALL and small cell lung Ca are two major indications for cranial irradiation, even prophylactically to prevent brain metastasis.
In children, ALL is the most common cause.

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1372. Most common cause of severe hematemesis in a child is-

a) Portal hypetension

b) Peptic ulcer

c) Mallory weiss syndrome

d) None of the above

Correct Answer - A
Ans. is 'a' i.e., Portal hypertension
"Massive hematemesis in a child is almost always due to variceal bleeding".
Variceal bleeding is due to portal hypertension.

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1373. Which of the following is not a feature of physiological anaemia of infancy?

a) Term infant hemoglobin 7 gm%

b) Preterm infant hemoglobin 7 gm%

c) Term infant hemoglobin 9 gm%

d) Preterm infant hemoglobin 9 gm%

Correct Answer - A

Answer- A. Term infant hemoglobin 7 gm%

Physiologic Anemia of Infancy

1. Hemoglobin drops to low point at age 6 to 8 weeks
2. Erythropoietin nadir drops Hemoglobin
3. Term Infants: Hemoglobin drops to 9-11 g/dl
4. Preterm Infants: Hemoglobin drops to 7-9 g/dl

[Ref Anemia in infancy, pediatric in review American academy of pediatrics 2012]

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1374. Mean hemoglobin in a 1 year old child is

a) 18.5 g/dl

b) 16.5 g/d1

c) 14 g/c11

d) 12 g/dl

Correct Answer - D

Answer- D. 12 g/dl

		Hb level (g/L)		Prevalence (%)	
Age (mo)	**N**	**Meam**	**SE**	**Mild anemia (Hb<110 g/L)**	**Moderate to Severe anemia (Hb<80 g/L)**
0-5	56	9.8	0.21	78.1	5.2
6-11	88	10.08	0.17	75.3	5.8
12-23	128	10.04	0.21	63.3	11.9
24-60	251	10.18	0.13	68.3	8.1
Totel	523	10.09	0.09	69.3	8.3

Hb, hemoglobin

a. Means and frequencies are weighted.

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1375. **Which of the following biochemical test is used to diagnose Dubin Johnson syndrome?**

a) Serum transaminases

b) Bromsulphalein test (BSP)

c) Hippurate test

d) Gamma glutamyl transferase level

Correct Answer - B

Bromsulphalein test (BSP) is the diagnostic test for Dubin-Johnson Syndrome. Biliary excretion of numerous anionic compounds such as Bromsulphalein (BSP) is compromised in Dubin-Johnson Syndrome (DJS). In this test, BSP is administered as IV bolus and its clearance from plasma is determined. BSP levels show a characteristic rise in patients with DJS after 90 minutes of injection, due to reflux of conjugated BSP into the circulation from the hepatocyte.

Ref: Davidson's principles and practice of Medicine, 20th Edition, Chapter 23, Page 945; Harrison's Principles of Internal Medicine, 16th Edition, Page 1821; Digestive Diseases and Sciences Vol/17 numbers 6.

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1376. **Albinism is due to deficiency of the following enzyme?**

a) Phenylalanine hydroxylase

b) Homogentisic acid oxidase

c) Tyrosinase

d) Decarboxylase

Correct Answer - C

The most common cause of albinism is a defect in tyrosinase, the enzyme most responsible for the synthesis of melanin. Albinism is an inborn error due to lack of synthesis of melanin. It is an autosomal recessive disorder with a frequency of 1 in 20,000.

Ref: Textbook of Biochemistry and Human Biology by G. P. Talwar, 3rd Ed, Page 452

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1377. Amino acid metabolism is implicated in which disease?

a) Maple syrup urine disease

b) Reye's syndrome

c) Von Gierke's disease

d) McArdle's disease

Correct Answer - A

Answer- A. Maple syrup urine disease

It is due to deficiency of enzyme that catalyzes the second reaction in these amino acids metabolism i.e. branched chain-a keto acid dehydrogenase which catalyses decarboxylation of branched chain amino acids.

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1378. A 3 months old child was started on supplemental foods alongwith breastmilk. The child was fed with fruit pulp and sweetened cereals. Soon the child developed bloating of abdomen, vomiting, lethargy, irritability. On investigation, there was hyperbilirunemia and elevated transaminase levels. The child is suffering from which of the following enzyme deficiencies?

a) Fructokinase

b) Aldolase B

c) Gal actokinase

d) Galactose - 1 - phosphate uridyl transferase

Correct Answer - B

Answer- B. Aldolase B

Symptoms occur when foods or formulas containing these sugars are introduced into the diet.

Clinical manifestations resemble galactosemia and include jaundice, hepatomegaly, vomiting, lethargy, irritability, and convulsions.

Laboratory findings include a prolonged clotting time, hypo-albuminemia, elevation of bilirubin and transaminase levels, and proximal tubular dysfunction.

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1379. Earliest symptom of Tay sach disease

a) Exaggerated startle response

b) Bone deformation

c) Hepatomegaly

d) Excessive bleeding

Correct Answer - A

Ans. is 'a' i.e., Exaggerated startle response [Ref Illustrated medical biochemistry p. 330]

Tay-Sach disease

- Clinical symptoms are usually evident in the first year of life
- Initial signs are not dramatic and present as enfeeblement, spasticity and slow development.
- An exaggerated startle response to sound may be the most significant early sign of which a parent is aware.
- Other features are mental retardation, deterioration of vision and early death.
- "Affected infants usually develop normally until 4-5 months of age when decreased eye contact and an exaggerated startle response to noise (hyperacusis) are noted." ---Nelson.
- Patients with the infantile form of Tay-Sachs disease have clinical manifestations in infancy including loss of motor skills, increased startle reaction, and macular pallor and retinal cherry-red spots.

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1380. All are true about sacrococcygeal teratoma except

a) Not associated with increased serum markers

b) In most cases is not visible externally

c) If associated with hydrops, should be resected antenatally

d) Most common tumor of fetus

Correct Answer - B
Answer- B. In most cases is not visible externally
Ureters may be partially obstructed resulting in hydro-ureter and hydronephrosis.
Sacrococcygeal Teratoma (SCT) is the most common neoplasm in the fetus and newborn
Most common tumor in fetus and neonate sacrococcygeal teratoma
Most common tumor in infancy neuroblastoma.
They are not associated with elevated markers unless malignancy is present.
Sacrococcygeal teratoma with hydrops :- Treatment - Inutero resection or catheter directed vessel obliteration

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1381. Most common sign of LRTI [Lower respiratory tract infection] in children is

a) Chest indrawing

b) Tachypnea

c) Nasal flaring

d) Failure to feed well

Correct Answer - B

Answer- B. Tachypnea

Tachypnea is the most consistent manifestation of pneumonia. Pneumonia is an inflammation of the parenchyma of lungs, and mostly caused by bacterial or viral infection.

Most common cause of paediatric pneumonia is respiratory syncytial virus (RSV). Other viruses causing pneumonia are influenza virus (2"° most common virus), adenovirus, rhinovirus, and parainfluenza virus.

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1382. Most common intra abdominal solid organ tumor in child is ?

a) Neuroblastoma

b) Rhabdomyoblastoma

c) Wilm's tumor

d) Hypernephroma

Correct Answer - A
Ans. is 'a' i.e., Neuro blastoma

- Most common abdominal cancer of childhood.
- Most common cancer of infancy.
- *Most common extracranial solid tumor of childhood* (most common solid tumor of childhood is brain tumor).

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1383. Which of the following is not a sign of severe dehydration?

a) Tachycardia

b) Anuria

c) Increased thirst

d) Delayed capillary refill [>3 sec]

Correct Answer - C
Answer- C. Increased thirst
Peripheral pulses either rapid and
weak or absent
Decreased blood pressure
No urine output
Very sunken eyes and fontanel
No tears
Parched mucous membrane
Delayed elasticity (poor skin turgor)
Very delayed capillary refill (> 3 sec)
Cold and mottled
Limp
Depressed consciousness

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1384. What is the grade of dehydration if a child demonstrates excessive thirst and decreased urine output?

a) No dehydration

b) Mild dehydration

c) Moderate dehydration

d) Severe dehydration

Correct Answer - B
Answer- B. Mild dehydration
Normal or increased pulse
Decreased urine output
Thirsty
Normal physical findings

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1385. Content of Na' in ringer lactate is meq/1-

a) 154

b) 12

c) 130

d) 144

Correct Answer - C

Ans. is 'c' i.e., 130

1.	5% Dextrose / 10% Dx	Nil
2.	N/2 saline	77 meq
3.	N/5 saline	30 meq
4.	3% salime	513 meq
5.	Ringer lactate	130 meq
6.	Isolyte P.	26 meq

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1386. Which of the following cannot be used to detect HIV status in early infancy?

a) DNA - PCR

b) HIV culture

c) ELISA

d) P - 24 antigen assay

Correct Answer - C
Answer- C. ELISA
ELISA or Western blot test are not as reliable in young infants.
In older infants (> 6 months), detection of anti-HIV IgA antibodies by ELISA is diagnostic.
In children (> 18 months) demonstration of anti-HIV IgG antibodies by ELISA is used.

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1387. Teratology is a study of

a) Congenital heart defect

b) Congenital abnormalities

c) Wounds and injuries

d) None of the above

Correct Answer - B
Answer- B. Congenital abnormalities
Study of Congenital heart defects is a part of the broad spectrum of congenital abnormalities, the study of which is known as Teratology

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1388. Russell silver syndrome is associated with which of the following?

a) Autosomal inheritance

b) X - linked inheritance

c) Sporadic gene mutation

d) Uniparental disomy

Correct Answer - D
Answer- D. Uniparental disomy
Angelman syndrome
Prader Willi syndrome
Pseudohypoparathyroidism Ib
Transient neonatal diabetes mellitus
Beckwith - Wiedemann syndrome
Russell silver syndrome
Wang syndrome
Temple syndrome

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1389. Which of the following is not a feature of Down's syndrome?

a) Hypotonia

b) Infections

c) Female infertility

d) Early onset Alzheimer's disease

Correct Answer - C
Answer- C. Female infertility
GIT :- Anal atresia, Duodenal atresia, Hirschsprung disease, annular pancreas.
Increased incidence of leukemia (1%). Leukemias common are ALL (most common), AML (M7-AML) transient myeloproliferative disorders, and Juvenil CML.
Others : Early onset of Alzheimer's disease, Decreased immunity with recurrent infections, obesity, DM, Hypothyroidism (most common endocrine abnormality).

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1390. Which of the following is not a feature of Turner's syndrome?

a) Cubitus valgus

b) Cryptorchidism

c) Short fourth metacarpal

d) Shield chest

Correct Answer - B

Answer- B. Cryptorchidism

Clinical features in adolescents are short stature, webbed neck, low posterior hair line, widely spaced nipples with broad chest (shield chest), hypertelorism, epicanthus, slanted palpebral fissure, ptosis, micrognathia, cubitus valgus (increared carrying angle), sensorineural hearing loss, short fourth metacarpal, hypothyroidism, streak ovaries, and sexual infantilism. Turner syndrome is the most important cause of primary amenorrhea.

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1391. In Turner's syndrome which of the following is NOT seen :

a) Short stature

b) Widely spaced nipple

c) Webbed neck

d) Mental retardation

Correct Answer - D
Answer *is* D (Mental retardation):
Mental retardation is seen in Down & Klinefelter's syndrome but not in Turner's syndrome. All other features mentioned as options may be seen in Turner's syndrome.

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1392. Which of the following is true regarding Turner's syndrome?

a) Cubitus valgus

b) Autosomal dominant

c) Monosomy of chromosome 12

d) Sensorineural hearing loss

Correct Answer - A
Answer- A. Cubitus valgus
Turner syndrome is a monosomy of sex chromosome (not autosomal dominant). Cubitus valgus is a feature of Turner syndrome. SNHL is not a feature.

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1393. Single gene disorder which does not follow mendelian inheritance -

a) Sickle cell anemia

b) Down syndrome

c) Fragile X-syndrome

d) Retinoblastoma

Correct Answer - C

Ans. is 'c' i.e., Fragile X-Synd.

Transmission of certain single-gene disorders does not follow classical mendelian principles.

This group of disorder can be classified into following categories ?

1. Diseases caused by triplet - repeat mutation, e.g. fragile - X syndrome, Huntington disease, & others.
2. Disorders caused by mutation in mitochondrial genes, e.g. laber heriditary optic neuropathy.
3. Disorder associated with genomic imprinting.
4. Disorders associated with gonadal mosaicism.

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1394. Most common cause of shock in child

a) Septic shock

b) Hypovolemic shock

c) Cardiogenic shock

d) Anaphylactic shock

Correct Answer - B
Answer- B. Hypovolemic shock
Hypovolemia is the most common cause of shock in children.
The 2nd most common cause - Septic or distributive shock .
3rd most common - Cardiogenic shock

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1395. Which is the prognostic scoring system for head injury in children?

a) CCS

b) AUDIT

c) Injury severity score

d) Pediatric Trauma Score

Correct Answer - A

Answer- A. CCS

Table 1: Children Coma Score (CC S) < 2 years"

Ocular Response	
4	Pursuit
3	Extra ocular muscles intact reactive pupils
2	Fixed pupils and EOM impaired
1	Fixed pupils and EOM paralyzed
Verbal response	
3	Cries
2	Spontaneous respiration
1	Apneic
Motor responses	
4	Flexes and extends
3	Withdraws from painful stimuli
2	Hypertonic
1	Flaccid
Total Max. Score	11
Total Min Score	

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1396. Which of the following is a criteria for clinical Stage II of AIDS in children?

a) Lymphadenopathy

b) Oral candidiasis

c) Hepatosplenomegaly

d) Oesophageal candidiasis

Correct Answer - C

Answer- C. Hepatosplenomegaly

Clinical Stage 2

- Hepatosplenomegaly
- Papular pruritic eruptions
- Seborrhoeic dermatitis
- Extensive human papilloma virus infection
- Extensive molluscum contagiosum
- Fungal nail infections
- Recurrent oral ulcerations
- Lineal gingival erythema (LGE)
- Angular cheilitis
- Parotid enlargement
- Herpes zoster

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1397. Which of the following is closed at birth?

a) Foramen ovale

b) Posterior fontanelle

c) Ductus venosus

d) Anterior fontanelle

Correct Answer - B

Answer- B. Posterior fontanelle

Posterior fontanelle

- Posterior fontanelle generally closes by 2-4 months after birth.
- Posterior fontanelle usually closes by the age of 1-4 months. But sometime it may be ossified (closes) at birth. Thus, it is the best answer among the given choices.

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1398. Harlequin skin change is seen due to mutation of which gene?

a) ABCA 12

b) FAD

c) Keratin 1

d) ALOXE 3

Correct Answer - A

Answer- A. ABCA 12

Harlequin ichthyosis (HI) is caused by mutations in the ABCAl2 gene.

Mutation in the gene leads to defective lipid transport and ABCAl2 activity is required for the generation of long-chain ceramides that are essential for the development of the normal skin barrier. It is inherited by autosomal recessive mode of inheritance.

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1399. Ritter disease is a disease caused by -

a) Infection

b) Autoimmune

c) Genetic

d) Metabolic disorder

Correct Answer - A
Answer- A. Infection
Staphylococcal scalded skin syndrome is caused predominantly by phage group 2 staphylococci, particularly strains 71 and 55, which are present at localized sites of infection.

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1400. Pink color in the IMNCI chart is suggestive of

a) Normal zone of weight for age

b) Undernutrition (Upto - 2SD)

c) Severely underweight zone (Upto - 3SD)

d) Very severely undernourished (Upto - 5SD)

Correct Answer - C
Answer- C. Severely underweight zone (Upto - 3SD)
Green - Normal zone of weight for age
Yellow - Undernutrition (upto - 2SD)
Pink - Severely underweight zone (upto - 3 SD)

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1401. 5DHT is necessary for development of which of the following?

a) External genitalia

b) Internal genitalia

c) Mullerian structures

d) Wollfian structures

Correct Answer - A
Answer- A. External genitalia
Virilization of the wolffian duct is caused by the action of testosterone itself.
Masculinization of the urogenital sinus and external genitals depends on the action of DHT (Dehydrotestosterone) during the critical period of fetal masculinization.

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1402. True about Asperger syndrome:

a) More common in girl

b) Repetitive activity pattern

c) Subnormal intelligence is consistent feature

d) Severe language impairments is characteristic

e) All

Correct Answer - B

Ans. b. Repetitive activity pattern

Asperger syndrome:

- It is four times more likely to occur in males than in females and usually is first diagnosed in children between the ages of 2 and 6.
- The common characteristics include average or above average intelligence"
- There is no clinically significant general delay in spoken or receptive language or cognitive development. Self' help skills, adaptive behaviour, and curiosity about the environment during the first 3 years should be at a level consistent with normal intellectual development

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1403. Definition of childhood is under what age?

a) 8 years

b) 10 years

c) 12 years

d) 16 years

Correct Answer - C
12 years REF: Nelson Textbook of Paediatrics 17th edition different pages

Infancy	0-1 yr
Toddlerhood	1-3 yr
Early childhood (toddlerhood and some time afterwards)	1-4 yr
Middle Childhood (School Age)	6-12 yr
Preschool	2-5 yr
Adolescence (onset of puberty to maturity)	12-20 yr
Adulthood (full physical and intellectual maturity)	20-21 yr onwards

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1404. Prevalence of omphalocele at birth is

a) 1 in 100 live births

b) 1 in 2000 live births

c) 1 in 4000 live births

d) 1 in 10,000 live births

Correct Answer - C
Answer- C. 1 in 4000 live births
Incidence of omphalocele at 11 - 14 weeks gestation - 1 in 1100 pregnancies.
Prevalence at birth - 1 in 4000 - 6000 live births.
This indicates sudden mortality most likely due to in utero fetal demise from associated chromosomal anomalies as well as elective termination after the diagnosis

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1405. Pectus excavatum is

a) Protrusion of sternum

b) Sternal depression

c) Sternal cleft

d) Lateral displacement of sternum

Correct Answer - B
Answer- B. Sternal depression
Pectus excavatum (funnel chest) is midline narrowing of thoracic cavity due to sternal depression.
May occur in isolation or may be associated with a connective tissue disorder, Marfan or Ehlers-Danlos syndrome. Secondary to chronic lung disease, neuromuscular disease, or trauma.

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1406. A child aged 7 years has how many teeth

a) 15

b) 20

c) 26

d) 32

Correct Answer - C
Answer- C. 26
Permanent teeth that appear :

- 1st molars :- 4
- Central incisors :- 2
- Temporary teeth :- 20 (since molars are superadded permanent teeth and central incisors are replaced).
- So in all 26 teeth (Range 24 to 26) - at 7 years of age.

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1407. What is the age of the child who draws a circle and builds tower of 7 cubes?

a) 1 year

b) 2 years

c) 21/2 years

d) 3 years

Correct Answer - D

Answer- D. 3 years

Age	Milestone	Age	Number of cubes of tower
12-24 months	Tries to scribble spontaneously	12 months	2
			3
2 years	Draws a vertical or horizontal line	15 months	4
3 years	Draws a circle	18 months	6
4 years	Draws a cross (plus sign) and draws a rectangle	21 months 24 months	7
5 years	Draws a triangle	30 months	9
		36 months	10

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1408. By what age is the milestone of climbing steps with alternate feet achieved?

a) 2 years

b) 3 years

c) 4 years

d) 5 years

Correct Answer - B
Answer- B. 3 years
Walk independently- 1 year
unwell, climbing upstairs and going downstairs with one step at a time- 2 years
Ride tricycle; climbing upstairs with alternate feet- 3 years
Hopping; going downstairs with alternate feet- 4 years
Skipping- 5 years

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1409. Mature finger grip comes at what age?

a) 5 months

b) 7 months

c) 9 months

d) 1 year

Correct Answer - C
Answer- C. 9 months
6 months → Drops one object when another is offered
7 months → Transfers object & unidextrous approach
9 months → -p Pincer grasp
12 — 13 months → Casting appear, mouthing disappear
15 months → Feeds himself with cup, slight spillage

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1410. Social smile is attained at what age?

a) 2 months

b) 5 months

c) 9 months

d) 1 year

Correct Answer - A
Answer- A. 2 months
Social smile develops at 2 months.

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1411. Arrange the following milestones in the correct order of their attainment

I. Build tower of 4 cubes
II. Make simple sentences
III. Drawing a circle
IV. Drawing a rectangle

a) II → III → IV → I

b) I → II → III → IV

c) II → I → III → IV

d) I → II → IV → III

Correct Answer - B
Answer- B. I → II → III → IV
The age of attainment of the milestones is :-

- Builds a tower of 4 cubes →18 months
- Makes simple sentences → 2 years
- Drawing a circle → 3 years
- Drawing a rectangle → 4 years

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1412. By what age can a newborn recognize mother?

a) 2 months

b) 3 months

c) 6 months

d) 7 months

Correct Answer - B
Answer- B. 3 months
Head control
Starts cooing
Recognizes mother
Can follow an object upto 180°
On pulling the child to sit, head lags partially (between 2-3 months).
After 3 months head control develops.

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1413. Which of the following can be done by an 18 months old baby?

a) Making tower of 9 cubes

b) Can use 10 words with meaning

c) Ride tricycle

d) Turn pages of book one at a time

Correct Answer - B
Answer- B. Can use 10 words with meaning
At 18 months, the child can use 10 words with meaning.

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1414. Vocabulary of 1.5 year old child is -

a) 1-10 words

b) 10-20 words

c) 20-30 words

d) 30-40 words

Correct Answer - B
Ans. is 'b' i.e., 10-20 words

- At 18 months, the child can use 10 words with meaning.
  Other milestones asked in the question are achieved in children older than 18 months :?
- Making a tower of 9 cubes - 30 months
- Turn pages of book one at a time - 2 years
- Ride tricycle - 3 years

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1415. A child of 5 years can use sentences of around how many words?

a) 6 words

b) 10 words

c) 100 words

d) 250 words

Correct Answer - B
Answer- B. 10 words
Although a child has a vocabulary of 250 words at 3 years, the child can use sentence of 10 words at 5 years.

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1416. Milestones achieved by a 10 months old child are all except -

a) Pincer grasp

b) Waving bye - bye

c) Standing without support

d) Plays a peek - a - boo game

Correct Answer - C
Answer- C. Standing without support
Baby stands without support by 1 year of age.
Pincer grasp → 9 months
Waving bye - bye → 9 months
Plays a peek - a - boo game → 10 months

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1417. What is the age of a child who can identify 4 colours and draw a triangle?

a) 21/2 years

b) 3 years

c) 4 years

d) 5 years

Correct Answer - D
Answer- D. 5 years
A child learns to draw a triangle at the age of 5 years.
Identification of four colours is attained at the age of 4 years.

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1418. Weight of an infant doubles by what age?

a) 6 months

b) 1 year

c) 2 years

d) 3 years

Correct Answer - C
Answer- C. 2 years
Weight of an infant doubles by 5 months and quadruples by 2 years of age.

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1419. Growth of head circumference in 1st 3 months of life is by

a) 2 cm

b) 3 cm

c) 5 cm

d) 10 cm

Correct Answer - C

Answer- C. 5 cm

Head circumference is measured from the occipital protuberance to the supraorbital ridge of forehead which is the maximum occipito frontal diameter of skull. The head circumference in utero grows by 0.5 cm in first 2 weeks, 0.75 cm in 3rd week and after that 1 cm/week till birth.

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1420. Delayed eruption is failure of teeth to appear by

a) 6 months

b) 13 months

c) 25 months

d) 37 months

Correct Answer - B
Answer- B. 13 months
Delayed eruption is usually considered when there are no teeth by approximately 13 months of age (mean + 3 SD).
Common causes of delayed eruption of teeth include :-
Idiopathic (Most common).
Hypothyroid
Hypoparathyroid
Familial

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1421. Breast milk protects from infections as it contains all of the following except:

a) IgE

b) Lactoferrin

c) Bifidus factor

d) PABA

Correct Answer - A

Answer- A. IgE

Breast milk contains several antiinfective factors

1. Antibodies -3 secretory IgA, IgM
2. Lysozyme
3. Antistaphylococcal factor
4. Specific inhibitory substances against viral infections.
5. Lactoferrin → Inhibits growth of E. coli.
6. Bile stimulated lipase → kills entamoeba histolytica and Giardia lamblia.
7. Bifidus factor → Inhibits growth of E. coli
8. Para-amino-benzoic acid (PABA) → Provides protection against malaria ix) Phagocytic macrophages and lymphoid cells

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1422. Which of the following is true regarding premature milk as compared to mature milk?

a) Less lactose

b) Less iron

c) Less immunoglobulins

d) Less sodium

Correct Answer - A

Answer- A. Less lactose

Preterm milk

- The milk of mother who delivers prematurely differs from the milk of a mother who delivers at term.
- Preterm milk contains : Less lactose (in comparison to term milk).
- Contains more protein S, sodium, iron, immunoglobins and calories as they are needed by the preterm baby.

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1423. All of the following are true regarding breast milk as compared to cow's milk except

a) Contains more lactose

b) More amount of proteins

c) Less amount of fat content

d) Minerals and salts is less

Correct Answer - B

Answer- B. More amount of proteins

In comparison to cow milk, human milk contains less amount of : Proteins (1 gm/ 100 ml), salts (sodium, chloride, potassium), fat (3.4 gm/100 ml), and minerals (calcium, phosphate) & more : Lactose (7g/100 ml or 7%).

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1424. Which of the following is the best reference for growth monitoring in children?

a) ICMR

b) NCHS

c) Boston

d) IAP

Correct Answer - B

Answer- B. NCHS

WHO reference values (NCHS standards)

- These are most commonly used and best available reference values for international use.
- These values are based on the data assembled by United States National Centre for Health Statistics (NCHS).
- Classification of PEM is based on these standards

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1425. Kwashiorkar is due to deficiency of

a) Calories

b) Minerals

c) Vitamins

d) Zinc

Correct Answer - A
Answer- A. Calories
Marasmus and kwashiorkor are due to deficiency of proteins and calories.
It is characterized by classical 'triad' of edema (Due to hypoalbuminemia), markedly retarded growth and psychomotor (mental) changes.

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1426.

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Which of the following is the most metabolically active part of long bone?

a) Epiphysis

b) Metaphysis

c) Diaphysis

d) Physis

Correct Answer - D
Answer- D. Physis
The growth plate (physis) and the adjacent terminal diaphysis represent the most metabolically active segment of the long bone. This part changes dramatically during development and hence it is called the metaphysis

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1427. Iliotibial band contracture in patients of poliomyelitis will lead to

a) Flexion at hip and knee

b) Flexion at hip, extention at knee

c) Extention at hip flexion at knee

d) Extention at hip and knee

Correct Answer - A

Answer- A. Flexion at hip and knee

Deformities: Iliotibial band contracture can lead to :

- Flexion, abduction and external rotation deformity at hip (most common).
- Flexon and valgus at lcnee or sometimes triple deformity at knee (flexion, posterior subluxation and external routation of tibia on femur).
- Equinovarus at ankle and foot.
- Lumbar scoliosis and pelvic obliquity at spine and pelvis respectively.

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1428. Jumpers knee

a) Apophysitis of patellar tendon as it inserts in patella

b) Apophysitis of patellar tendon as it inserts in tibia

c) Apophysitis of quadriceps tendon as it inserts in patella

d) Apophysitis of hamstring tendon as it inserts in tibia

Correct Answer - A

Answer- A. Apophysitis of patellar tendon as it inserts in patella

- It is also called Patellar tendinitis
- This is an apophysitis (inflammation) of the patellar tendon as it inserts into the patella.
- It is associated with pain, swelling and crepitus.

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1429. Which of the following is not true about Galeazzi fracture dislocation?

a) Fracture of distal third of radius and dislocation of distal radio-ulnar joint

b) Results from fall on outstretched hand

c) The distal end of ulna dislocates volarly after disruption of distal radio - ulnar joint

d) Radius is angulated medially and anteriorly

Correct Answer - C

Answer- C. The distal end of ulna dislocates volarly after disruption of distal radio - ulnar joint

- Fracture of the distal third of the radius with dislocation of the distal radioulnar joint
- This injury is the counterpart of the Monteggia fracture-dislocation.
- It commonly results from a fall on an out stretched hand.
- The radius fracture is angulated medially and anteriorly. The distal radioulnar joint is disrupted, resulting in dorsal dislocation of the distal end of the ulna
- Malunion occurs because of displacement of the fragment. It results in deformity and limitation of supination and pronation.

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1430. In Monteggia fracture, which is true about ulnar fracture and head of radius

a) Both ulnar fracture and head of radius is displaced posteriorly

b) Both ulnar fracture and head of radius is displaced anteriorly

c) Ulnar fractures is posteriorly and head of radius is displaced anteriorly

d) Ulnar fracture is anteriorly and head of radius is displaced posteriorly

Correct Answer - B

Ans: B i.e. Both ulnar fracture and head of radius is displaced anteriorly

* This is a fracture of the upper-third of the ulna with dislocation of the head of the radius. It is caused by a fall on an outstretched hand. It may also result from a direct blow on the back of the upper forearm.

- These fall into two main categories depending upon the angulation of the ulna fracture - extension and flexion type. The extension type, is the commoner of the two, where the ulna fracture angulates anteriorly (extends) and the radial head dislocates anteriorly. The flexion type is where the ulna fracture angulates posteriorly (flexes) and the radial head dislocates posteriorly.

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1431. Which of the following is not true about Jeffersons fracture?

a) It is a burst fracture of the ring of atlas vertebra

b) It is the most common type of atlas fracture

c) Fracture definintion is particularly clear on CT Scan image

d) It is associated with injury elsewhere in spine in 25% of the cases

Correct Answer - D

Answer- D. It is associated with injury elsewhere in spine in 25% of the cases

Sudden severe load on the top of the head may cause a 'bursting' force which fractures the ring of the atlas (Jefferson's fracture). Thus it is a type of axial compression force.

It is the most common type of fracture of the Atlas.

There is no encroachment on the neural canal and usually no neurological damage.

With the exception of pain or loss of sensation in the greater occipital nerve distribution, neurological sequelae are uncommon and more likely to be related to associated injuries.

Fracture of atlas are associated with injury elsewhere in cervical spine in upto 50% of cases; odontoid fractures and hangman's fracture in particular should be excluded

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1432. Which of the following shoulder movements is/ are weak in patients of supraspinatus tear?

a) Abduction

b) Adduction

c) External rotation

d) Internal rotation

Correct Answer - A

Answer- A. Abduction

- Patients may tear the supraspinatus tendon acutely by falling on an outstretched arm or lifting a heavy object.
- Symptoms are pain along with weakness of abduction and external rotation of the shoulder.
- Atrophy of the supraspinatus muscles develops.

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1433. Which of the following is not true about impingement syndrome?

a) It is the tendinitis caused by inflammation of the rotator cuff tendons

b) Supraspinatus tendon is most often involved

c) Shoulder abduction in the arc of 60 - 120 degrees is particularly painful

d) Surgical decompression of the subacromial space is frequently indicated

Correct Answer - D

Answer- D. Surgical decompression of the subacromial space is frequently indicated

Impingement syndrome (painful are syndrome) is most commonly due tendinits of supraspinatus component of rotator cuff and is characterized by pain in 60°- 120" of abduction. Treatment is initialy conservative. Surgical decompression is required in failed cases.

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1434. Vascular sign of Narath is noticed in

a) Fracture neck of femur

b) Perthes disease

c) Posterior dislocation of hip

d) All of the above

Correct Answer - C

C i.e. Posterior dislocation of hip

- Vascular sign of narath is positive in posterior dislocation of hip joint.
- Due to posterior dislocation, the hip joint falls on the femoral artery, and this causes feeble or absent femoral pulse.

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1435. Most dangerous type of odontoid fracture as per Anderson and D' Alonzo classification and its respective management is

a) Type I - immobilization in rigid collar

b) Type II - screw fixation

c) Type III - halo vest immmobilization

d) Type IV - ope reduction internal fixation

Correct Answer - B

Answer- B. Type II - screw fixation

Odontoid fractures have been classified by Anderson and D'Alonzo (1974) as follows:

1. Type I - An avulsion fracture of the tip of the odontoid process due to traction by the alar ligaments. The fracture is stable (above the transverse ligament) and unites without difficulty.
2. Type II - A fracture at the junction of the odontoid process and the body of the axis. This is the most common (and potentially the most dangerous) type. The fracture is unstable and prone to non-union. It requires fixation by screw.
3. Type III - A fracture through the body of the axis. The fracture is stable and almost always unites with immobilization.

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1436. Increased Q angle predisposes to

a) Medial patellar subluxation

b) Lateral patellar subluxation

c) Superior patellar subluxation

d) Inferior patellar subluxation

Correct Answer - B

Answer- B. Lateral patellar subluxation

Patellar alignment can be assessed by measuring the Q-angle (quadriceps angle).

This is the angle subtended by a line drawn from the anterior superior iliac spine to the centre of the patella and another from the centre of the patella to the tibial tubercle.

It normally averages about 14 degrees in men and 17 degrees in women.

Patellofemoral stability is maintained by a combination of the articular surface geometry and soft tissue restraints.

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1437. Seat belt injury is

a) Tear drop fracture

b) Wedge fracture

c) Chance fracture

d) Whiplash injury

Correct Answer - C
C i.e. Chance fracture
A horizontal fracture of the vertebra extending from body to the posterior element, caused by a strong distraction force

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1438. Palpable femur head on per rectal exam is a feature of which of the following conditions?

a) Posterior hip dislocation

b) Anterior hip dislocation

c) Central hip dislocation

d) Inferior hip dislocation

Correct Answer - C

Answer- C. Central hip dislocation

In central fracture-dislocation of the hip the femoral head is driven through the floor (medial wall) of the acetabulum towards the pelvic cavity.

It occurs due to fall on the side, or a blow over the greater trochater.

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1439. The most common complication of intracapsular fracture neck of femur is

a) Mal union

b) Osteoarthritis

c) Non-Union

d) Shortening

Correct Answer - C
C i.e. Nonunion

- Both intracapsular neck fracture and extracapsular fracture (basicervical and IT fracture) have same deformities, i.e. external rotation and shortening.
- These displacements are more marked in extracapsular fractures, because in an intracapsular fracture, the capsule of the hip joint is attached to the distal fragment and prevents extreme rotation and displacement of the distal fragment (and with it, the limb).
- In extracapsular fracture, distal fragment being outside the capsule is displaced more markedly.

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1440. Popliteal artery injury is commonly seen in which type of traumatic knee dislocation?

a) Anterior

b) Posterior

c) Medial

d) Lateral

Correct Answer - B

Answer- B. Posterior

Popliteal artery injury is common with both anterior and posterior dislocations.

Posterior dislocations more likely to result in direct injury and even rupture of popliteal artery (isolated transection).

Anterior dislocations cause stretching of popliteal artery which may lead to intimal disruption and thrombosis (damage is over a longer segment of artery).

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1441. Kocher manoeuver is used for

a) Shoulder reduction

b) Elbow reduction

c) Ankle dislocation

d) Knee dislocation

Correct Answer - A

Answer- A. Shoulder reduction

Kocher's manoeuvre :

- This is the most commonly used method.

The steps are as follows:

1. Traction— with the elbow flexed to a right angle steady tractionis applied along the long axis of the humerus;
2. External rotation—the arm is rotated externally;
3. Adduction—the externally rotated arm is adducted by carrying the elbow across the body towards the midline; and
4. Internal rotation – the arm is rotated internally so that the hand falls across to the opposite shoulder.

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1442. Ankle sprain due to forced inversion of a plantar flexed foot is due to injury to

a) Anterior talofibular ligament

b) Posterior talofibular ligament

c) Calcaneofibular ligament

d) Posterior fibres of deltoid

Correct Answer - A

Ans. a. Anterior talofibular ligament

* Structures damaged due to inversion injury.
  - Peroneal tendon injury.
  - Avulsion fracture of tip of lateral malleolus .
  - Avulsion fracture of anterolateral surface of talus & calcaneum (sustentaculum tali).
  - Fracture of base of 5th metatarsal.
  - Lateral collateral ligament injury (anterior talo fibular *> calcaneofibular > posterior- talofibular ligament).*
  - Medial malleolus fracture.

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1443. Treatment of scaphoid fracture

a) Conservative

b) Compression Screws

c) Compression Plating

d) Traction

Correct Answer - A
Answer- A. Conservative
The treatment of a scaphoid is essentially conservative.
The hand is immobilized in a scaphoid cast with wrist in little dorsiflexion and radial deviation (glass holding position).

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1444. All of the following are true regarding fracture of lateral condyle of humerus except

a) Usually seen at 6 - 10 years of age

b) Results in Gun stock deformity

c) Cubitus valgus occurs

d) Tardy ulnar nerve palsy is seen

Correct Answer - B

Answer- B. Results in Gun stock deformity

Fracture Lateral Condyle Humerus/Jupiter fracture

- It is a common fracture in children. The lateral condylar (or capitular) epiphysis begins to ossify during the first year of life and fuses with shaft at 12-16 years. Between these ages it may be sheared off or avulsed by forceful traction. The maximum chances of injury is between 6-10 years.

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1445. Most common complication of fracture of tibia

a) Infection

b) Compartment syndrome

c) Delayed union

d) Vascular injury

Correct Answer - C

Answer- C. Delayed union

The tibia has some characteristic features which are responsible for delayed union or non-union of tibia fractures.

The distal third of tibia is particularly prone for delayed union and nonunion because of its precarious blood supply.

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1446. Which of the following is not true about ACL injury?

a) It is a component of the 0' Donoghue triad

b) ACL is intrasynovial

c) ACL is important for proprioceptive function

d) Anterior drawer test is the most sensitive test

Correct Answer - D
Answer- D. Anterior drawer test is the most sensitive test
Lachman's test is the most sensitive test for anterior cruciate ligament tears. It is done with the knee flexed at 20 degrees. So it can be done in acute as well as chronic injuries. (because in acute cases with hemarthrosis more flexion is usually not possible so performing anterior drawer test is difficult).
ACL is intrasynovial & has proprioceptive function.

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1447. Continuous fixed traction is provided by -

a) Thomas splint

b) BB splint

c) Hamilton Russel

d) Gallows

Correct Answer - A
Answer- A. Thomas splint
Combined traction - If a Thomas' splint is used, the tapes are tied to the end of the splint and the entire splint is then suspended, as in balanced traction

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1448. Cobra head plate is used for

a) Hip arthrodesis

b) Knee arthrodesis

c) Elbow arthrodesis

d) Ankle arthrodesis

Correct Answer - A
Answer- A. Hip arthrodesis
Special implants

- SP nail-plants
- Dynamic hip screw (DHS)- Intertrochanteric fracture
- Condylar blade-plate- Interochanteric fracture
- T-plate- Condylar fracture of femur
- Spoon plate tibia- Condyar fracture of tibia
- Cobra plate- Fracture of lower aend of Hip arthrodesis

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1449. Locking compression plating for is commonly indicated in the following fracture types

a) Periarticular fractures

b) Transverse or oblique fractures of long bones

c) Intertrochanteric fractures

d) Fracture of long bones

Correct Answer - A

Answer- A. Periarticular fractures

Locking compression plates are commonly used in periarticular fractures

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1450. Dunlop traction is a type of traction used in management of

a) Fracture humerus

b) Fracture radius

c) Fracture femur

d) Fracture Tibia

Correct Answer - A

Answer- A. Fracture humerus

It is used in management of fracture humerus.

It is a skin traction applied to the arm with the child supine.

Traction straps are applied to the forearm with the arm supinated.

A counterweight is hung from the upper part of the arm to help pull the proximal fragment of the humerus posteriorly, to approximate the distal fragment.

Longitudinal traction is then applied to the supinated forearm with the elbow flexed to about 45 degrees

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1451. Ankle reflex is affected in prolapsed intervertebral disc at what level?

a) L3 - L4

b) L4 - L5

c) L5 - S1

d) S1 - S2

Correct Answer - C
Answer- C. L5-S1
S1 root- Weakness of plantar flexors of root- Over lateral side of foot

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1452. CTEV shoe true is

a) It is the same as normal shoe

b) It has straight medial border

c) It has medical shoe raise

d) It has heel with extra length

Correct Answer - B

Answer- B. It has straight medial border

It has straight inner (medial) border which helps prevent forefoot adduction.

It has outer shoe raise which helps prevent forefoot inversion.

There is no heel which helps prevent equinus.

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1453. All are features of inflammatory arthritis except?

a) Morning stiffness

b) X-ray showing sclerosis

c) Elevated ESR

d) Weight gain

Correct Answer - B

Answer- B. X-ray showing sclerosis

X-ray feature of inflammatory arthritis shows rarefaction while x-ray features in non-inflammatory arthritis reveals sclerosis.

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1454. Which of the following is not true about the tests for hip instability in neonates?

a) Ortolanis test has two parts

b) They are performed at 2 - 3 days of birth

c) In ortolanis test examiners fingers rest on the greater trochanter

d) In barlows test examiners thumb is placed in the groin

Correct Answer - A

Answer- A. Ortolanis test has two parts

In Ortolani's test, the baby's thighs are held with the thumbs medially and the fingers resting on the greater trochanters; the hips are flexed to 90 degrees and gently abducted. Normally there is smooth abduction to almost 90 degrees.

In congenital dislocation the movement is usually impeded, but if pressure is applied to the greater trochanter there is a soft 'clunk' as the dislocation reduces, and then the hip abducts fully (the 'jerk of entry').

If abduction stops halfway and there is no jerk of entry, there may be an irreducible dislocation.

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1455. Ortolani test is positive when the examiner hears the ?

a) Clunk of entry on abduction and flexion of hip

b) Clunk of entry on extension and adduction of hip

c) Click of exit on abduction and flexion of hip

d) Click of exit on extension and adduction of hip

Correct Answer - A

Ans. is 'a' i.e., Clunk of entry on abduction and flexion of hip

Clinical tests for CDH/DDH

- In *infancy* two tests are used.
- Barlow's test
- This test is done within *2-3 days of birth.*
- The test has two parts *:?*

.. *Part 1 :-* Infant is in supine position with hip and knee in 90° of flexion, *The hip is slowly adducted & pushed* to dislocate the hip and one can hear a clunck of exit of femoral head out of the acetabulum.

2. *Part 2 :-* Now the hip is *gently abducted and pulled* to reduce the hip. This will cause 'clunk' indicating reduction of hip.

- It is quite obvious that part 1 can be done only dislocatable hip; but not in already dislocated hip as the head is already out of the acetabulum.

Ortolani's test

- This test is similar to 2nd part of Barlow's test, i.e. slow abduction of hip in flexed position of hip & knee to reduce the hip.

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1456. Oncogenic osteomalacia is mediated by

a) Phosphatonin

b) Calcitonin

c) Interleukin 2

d) Interleukin 6

Correct Answer - A
Answer- A. Phosphatonin
Oncogenic osteomalacia is mediated by phosphatonin in certain tumors, particularly vascular tumours like hemangiopericytomas and also fibrohistocytic lesions

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1457. Which of the following is true about CTEV

a) It is more common in females

b) Right foot is usually more affected than the left

c) Talus is displaced medial and plantarwards

d) Tibia usually shows lateral torsion

Correct Answer - C

Answer- C. Talus is displaced medial and plantarwards

CTEV is the commonest and most important congenital deformity of the foot. CTEV is more common males in than in females (males to female ratio 2.5 : 1). In half of the cases CTEV is bilateral. Right and left foot are affected equally.

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1458. The last deformity to be corrected by Ponseti's method for CTEV is -

a) Heel Varus

b) Equinus

c) Foot Adduction

d) Cavus

Correct Answer - B

Answer- B. Equinus

Ponseti's technique

- This involves first correcting the cavus deformiry then the adductionand heel varus andfinally the equinus deformity.
- This technique is now mostly accepted technique for CTEV correction as it is based on better understanding ofthe pathoanatomy ofthe deformed foot.
- The success ofreduction is 90-98 Percent.

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1459. Which of the following is not true about the manipulation methods to correct CTEV?

a) Involves serial casting and below knee plaster casting

b) In kites method deformities are corrected sequentially adduction → inversion → equinus

c) Ponseti's technique has success rate of 90 - 98%

d) Ponseti's method of correction involves cavus —> adduction --> heel varus —> equinus

Correct Answer - A

Answer- A. Involves serial casting and below knee plaster casting

Serial manipulation and above knee plaster casting is done weekly for the first 6 weeks.

Other options are correct.

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1460. Which of the following is the management for neglected case of CTEV in a patient > 10 years of age?

a) Triple arthrodesis

b) Ankle arthrodesis

c) Jess fixation

d) Ponseti casting

Correct Answer - A

Answer- A. Triple arthrodesis

* All these require surgical correction and the surgery depends upon the age of the patient.
  - < 4 years of age :- Postero-medial soft tissue release
  - > 4 years :- Postero-medial soft tissue release with a bony procedure :-
* 4 - 8 years :- Dilwyn - Evans procedure (PMR + Calcaneo-cuboid fusion)
* 8 - 10 years :- PMR + Wedge tarsectomy
* > 10 years :- Triple arthrodesis (subtalar, calcaneo-cuboid, and talonavicular joints)

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1461. Osteoporosis is seen in all the following *except*

a) Thyrotoxicosis

b) Rheumatoid arthritis

c) Hypoparathyroidism

d) Steroid therapy

Correct Answer - C

Answer is C (Hypoparathyroidism) :

Osteoporosis as associated with lzyperparathyroidism (not hypoparathyroidism).

DISEASES ASSOCIATED WITH AN INCREASED RISK OF GENERALIZED OSTEOPOROSIS IN ADULTS :

Hypogonadal States	**Nutritional and gastrointestinal disorders**
Turner Syndrome	Malnutrition
Klinefelter syndrome	Parenteral nutrition
Anorexia nervosa	Malabsorption syndromes
Hypothalmic amenorrhea	Gastrectomy
Other primary or secondary hypogonadal states	Severe liver disease, especially biliary cirrhosis
	Pernicious anemia
Endocrine disorders	**Hematologic disorders / Malignancy**
Cushing's syndrome	Multiple disorders/malignancy
Hyperparathyroidism	Lymphoma and leukemia
Thyrotoxicosis	Malignancy-associated parathyroid hormone - related (PTHrP)

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Insulin-dependent diabetes mellitus
Acromegaly
Adrenal insufficiency

Selected inherited & Rheumatologic disorders

Osteogenesis imperfecta[Q]
Marfan syndrome[Q]
Hemochromatosis
Hypophosphatasia[Q]
Glycogen storage diseases
Homocystinuria[Q]
Ehlers-Danlos syndrome
Porphyria
Menkes' syndrome
Epidermolysis bullosa
Rheumatoid arthritis

production
Mastocytosis
Hemophilia
Thalassemia

Miscellaneous

Immobilization[Q]
Chronic obstructive pulmonary disease
Pregnancy and lactation
Scoliosis
Multiple sclerosis
Sarcoidosis
Amyloidosis
Alcoholism

DRUGS ASSOCIATED WITH AN INCREASED RISK OF GENERALIZED OSTEOPOROSIS IN ADULTS :

Glucocorticoids2
Cyclosporine[Q]
Cytotoxic drugs
Anticonvulsants
Excessive alcohol
Excessive thyroxin
Aluminium
Gonadotropin-releasing hormone agonists[Q]
Heparin
Lithium

1462. Which of the following is not true about SCFE?

a) Males are affected more frequently

b) Extension is restricted

c) Commonly occurs during adolescence

d) Varus, adduction and external rotation deformities are present

Correct Answer - B

Answer- B. Extension is restricted

- SCFE is the separation of proximal femoral capital epiphysis (head) at growth plate.
- SCFE occurs due to weakness of growth plate and occurs during adolescent period (11-15 years) when the growth plate is weak due to accelerated growth.
- Males are affected more frequently than females.
- Movements are restricted particularly abduction and internal rotation.
- Flexion is also restricted and extension is increased. And this clinical feature differentiates SCFE with all other hip pathologies because most of the hip pathologies have opposite deformity, i.e. flexion deformity with restricted extension.
- Varus, adduction and external rotation deformities are present.
- External rotation is increased along with extension.
- When hip is flexed it goes into external rotation, i.e. obligatory external rotation. It is a very important sign of SCFE.
- Waddling gait is present.
- Trendelenburg's test is positive.

1463. Genu recurvatum is seen in -

a) Rheumatoid arthritis

b) Poliomyelitis

c) Rickets

d) All the above

Correct Answer - D

Answer- D. All the above

a) Congenital recurvatum

- This may be due to abnormal intra-uterine posture; it usually recovers spontaneously. Rarely, gross hyperextension is the precursor of true congenital dislocation of the knee.

b) Lax ligaments

- Normal people with generalized joint laxity tend to stand with their knees backset. Prolonged traction, especially on a frame, or holding the knee hyperextended in plaster, may overstretch ligaments, leading to permanent hyperextension deformity. Ligaments may also become overstretched following chronic or recurrent synovitis (especially in rheumatoid arthritis), the hypotonia of rickets, the flailness of poliomyelitis or the insensitivity of Charcot's disease.

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1464. Psoriatic arthritis most commonly involves which joint -

a) Distal interphalangeal joint

b) Proximal interphalangeal joint

c) Wrist joint

d) Metacarpophalangeal joint

Correct Answer - A
Answer- A. Distal interphalangeal joint
These include :
1. Arthritis of distal interphalangeal (DIP) joints
2. Assymetrical oligoarthritis : Most common pattern
3. Symmetrical polyarthritis similar to RA
4. Axial involvement (sacroiliac and spine) similar to ankylosing spondylitis
5. Arthritis multilans

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1465. Which of the following is/are feature/s of sprengels deformity?

a) Elevated shoulder on affected side

b) Smaller than usual scapula

c) Short neck

d) All the above

Correct Answer - D

Answer- D. All the above

Sprengel's deformity : Deformity is the only symptom and it may be noticed at birth. The shoulder on the affected side is elevated; the scapula looks and feels abnormally high, smaller than usual and somewhat prominent; occasionally both scapulae are affected.

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1466. Tinel sign is seen in ?

a) Nerve degeneration

b) Nerve regeneration

c) Muscle degeneration

d) Muscle regeneration

Correct Answer - B

Ans. is 'b' i.e., Nerve regeneration

<u>Pathological changes after nerve injury</u>

- After nerve injury, nerve first degenerates and then tries to regenerate.

Nerve degeneration

- The part of the neurone distal to the point of injury undergoes *secondary or Wallerian degeneration;* the proximal part undergoes primary or retrograde degeneration upto a single node.

Nerve regeneration

- As regeneration begins, the axonal stump from the proximal segment begins to grow distally. If the endoneural tube with its contained Schwann cells is intact, the axonal sprout may readily pass along its primary course and reinnervate the end-organ. *The rate of recovery of axon is 1 mm per day.* The muscles nearest to the site of injury recovers first, followed by others as the nerve reinnervates muscles from proximal to distal, the so-called *motor march.*
- When the skin over the nerve is percussed gently from distal to proximal, the patient gets a tingling sensation if the nerve is recovering. This is called Tinel's sign and is a sign of recovery.

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1467. All are true about Marie - strumpell disease except :

a) Most commonly involves the sacro - iliac joints

b) Enhesitis is common

c) More common in males

d) Roentgenogram is the most sensitive investigation

Correct Answer - D

Answer- D. Roentgenogram is the most sensitive investigation

Marie — Strumpell disease is also known as Ankylosing Spondylitis

In the early disease process, plain x-rays (Roentgenogram) may be read as normal —> not very sensitive.

Ankylosing spondylitis primarily affects axial skeleton. The disease usually begins in the sacro-iliac joints and usually extends upwards to involve the lumbar, thoracic, and often cervical spine. In the worst cases the hips or shoulders are also affected. Hip joint is the most commonly affected peripheral joint.

It is more common in males (male to female ratio 2-3 : 1)

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1468. Most commonly lesion associated with pathological fracture in hand is -

a) Enchondroma

b) Metastases

c) Osteoid osteoma

d) Osteochondroma

Correct Answer - A
Answer- A. Enchondroma
In hand pathological fractures are most commonly associated with benign bone tumors.
About 23 % of the bone tumors in hand present with pathological fractures.
The average age of presentation is 37 years.
The most common bone affected is the proximal phalynx, the fifth ray was involved in 44% of the patients.
Majority (approximately 88%) of the pathological fractures are caused by enchondromas.

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1469. **Most common primary bone tumour of hand is:**

a) Osteoma

b) Osteochondroma

c) Enchondroma

d) None of the above

Correct Answer - C

Enchondromas arise from cartilage and are the most common primary bone tumors of the hand. These lesions account for >90% of bone tumors seen in the hand.

Ref: Schwartz's principle of surgery 9th edition, chapter 44.

- Commonest bone malignancies -> Secondaries (metastases)
- Commonest primary malignant tumor > Multiple myeloma
- Commonest primary malignant tumor o long bones Osteosarcoma
- Commonest benign tumor of bonne - Osteochondroma
  (Osteochondroma is not ture neoplasm since its growth stops with cessation of growth at the epiphyseal plate)
- Commonest true benign tumor of bone -> Osteroid osteoma
- Commonest benign tumor of hand - Enchondroma

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1470. Most common malignant bone tumor-

a) Osteogenic sarcoma

b) Secondaries

c) Osteoma

d) Enchondroma

Correct Answer - B
Ans. is 'b' i.e., Secondaries
o Secondaries are most common malignant bone tumor.
o Osteogenic sarcoma is the most common primary malignant bone tumor. o Osteoma is most common benign bone tumor.

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1471. Age group affected by osteosarcoma -

a) Upto 10 years

b) 10 - 20 years

c) 30 - 40 years

d) Older than 45 years

Correct Answer - B
Answer- B. 10 - 20 years
Osteogenic sarcoma is the most common primary malignant tumor of bone in children.
This is predominantly a tumor of childhood or adolescence, occuring most commonly in the 10-25 years.
The most common site of involvement is metaphysis of long bone around knee : -

- Lower end of femur (45%)
- Upper end of Tibia (25%)

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1472. Which is intramendullary tumor among carcinoma of bone -

a) Classical Osteosarcoma

b) Parosteal osteosarcoma

c) Periosteal osteosarcoma

d) None of the above

Correct Answer - A

Answer- A. Classical Osteosarcoma

In its classic (intramedullary) form, osteosarcoma is a highly malignant tumor arising within the bone and spreading rapidly outwards to the periosteum and surrounding soft tissue. The tumor most commonly begins in the metaphysis. Osteosarcoma arises from primitive bone - forming cells. Tumor destroys the bone structure and eventually bursts into the surrounding soft tissues.

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1473. 33 yr old female presents with a slow growing bony mass along the distal femur cortex in the metaphyseal region with an appreciable gap between the cortex and tumor without any cortical invasion. What is the usual treatment for the same?

a) Local resection

b) Amputaion

c) Chemotherapy

d) Radiotherapy

Correct Answer - A

Answer- A. Local resection

Slow growing bony mass along the distal femur cortex in the metaphyseal region with an appreciable gap between the cortex and tumor without any cortical invasion in an individual in the 3rd or LIth decade of life is suggestive of - parosteal osteosarcoma. Local resection of the lesion is the usual treatment for parosteal osteosarcoma.

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1474. First radiological sign for active tubercular arthritis is -

a) Localized osteoporosis

b) Sclerosis

c) Joint space reduction

d) Osteophytes

Correct Answer - A
Answer- A. Localized osteoporosis
In tubercular arthritis, localized osteoporosis is the first radiological sign of active disease.

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1475. Which of the following is not true about the management of potts paraplegia?

a) Chemotherapy is the mainstay of conservative management

b) Paraplegia not improving with conservative treatment even after 3 - 6 months is an indication for operative intervention

c) Decompression via anterolateral approach is most preferred

d) Posterior fusion and instrumentation can be used to correct the deformity

Correct Answer - C

Answer- C. Decompression via anterolateral approach is most preferred

The following measures are adopted in the treatment of Pott's paraplegia :

1) Conservative treatment

- Chemotherapy (ATTs) is the mainstay of conservative treatment.
- Immobilization by traction (in cervical spine) or brace (in dorsal region).
- Physiotherapy of paralysed limb.

2) Surgical treatment

.. Following are the main indications for surgery.
2. Failed conservative treatment :- Paraplegia does not show improvement by conservative treatment even after 3-6 months.
3. Patient develops paraplegia while on conservative treatment.
4. Paraplegia getting worse despite adequate conservative treatment.
5. In doubtful diagnosis.
6. Rapid onset paraplegia
7. Recurrence of paraplegia after improvement initialy.

Operative procedure for Pott's paraplegia

- There are various procedures, the most commonly used procedure is anterior decompression by surgical debridement (removal dead, necrotic & caseous material) followed by autogenous strut grafting.
- The logic is well understood; the compression is from anterior side most of the time because tuberculosis occurs in vertebral body which lies anterior to the spinal cord. So, anterior decompression is the best procedure.

Anterior decompression can be caused by :

1. Anterior approach : - Called anterior decompression. It is the most preferred procedure.
2. Anterolateral approach : - Called anterolateral decompression.

Other surgical procedures (other than anterior decompression) are :

1. Costo-transversectomy
2. Posterior fusion and instrumentation to correct kyphotic deformity.
3. Laminectomy

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1476. Tuberculosis of spine most commonly affects which vertebral segment?

a) Upper dorsal

b) Lower dorsal

c) Lumbar

d) Cervical

Correct Answer - B

Answer- B. Lower dorsal

The spine is the commonest site of bone and joint tuberculosis. The most common site is Dorsolumbar region. Lower dorsal (thoracic) region is the most common segment involved followed by lumbar segment. The tuberculosis of spine is also called pott's disease or tubercular spondylytis.

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1477. A 20 year old male presents with history of gradual onset pain and swelling in left knee since 6 months. Now since last 1 month patient has started limping while walking and also has flexion deformity of knee. Ultrasonography shows presence of synovial thickening. What is the most probable diagnosis?

a) Tuberculosis of knee

b) Pigmented villonodular synovitis

c) Synovial sarcoma

d) Hemarthrosis

Correct Answer - A

Answer- A. Tuberculosis of knee

Unilateral monoarticular knee involvement with gradual onset pain swelling and flexion deformity, with synovial thickening is most probably suggestive of tuberculosis of knee.

Presenting complaints :

- The patient, usually in the age group of 10-25 years, presents with complaints of pain and swelling in the knee

On Examination:

1. Swelling : The joint is swollen, which may be due to synovial hypertrophy or effusion.
2. Muscle atrophy
3. Cold abscess

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4. Sinus
5. Deformity
6. The movements at the joint are limited

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1478. X-ray appearance of sequestrum is -

a) Unnatural radiodense fragments

b) Osteopenic fragment

c) Fragment with honeycomb loculated appearance

d) Radiolucent area with speckled calcification

Correct Answer - A
Answer- A. Unnatural radiodense fragments
Sequestrum is a piece of dead bone, surrounded by infected granulation tissue trying to eat the sequestrum away.
On x-ray, sequestra show up as unnatural dense fragments, in contrast to the surrounding osteopenic bone

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1479. Cubitus valgus develops as complication of -

a) Jupitor fracture

b) Smiths fracture

c) Malgaigne fracture

d) Staddle fracture

Correct Answer - A
Answer- A. Jupitor fracture
Fracture of lateral condyle of humerus (Jupitor fracture)

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1480. Most common site for the osteoporotic vertebral fracture is ?

a) Dorsolumbar spine

b) Cervical spine

c) Lumbosacral spine

d) Dorsal spine

Correct Answer - A

Ans. is 'a' i.e., Dorsolumbar spine

- Osteoporosis is an asymptomatic disorder unless complications (predominantly fractures) occur.
- *Most common symptom of osteoporosis is back pain secondary to vertebral compression fracture.*
- *Dorso-lumbar spine is the most frequent site.*
- Other common sites of fracture are lower end radius (Colle's fracture) and fracture neck femur.
- Osteoporotic fracture (fragile fractures) are : (i) *Fracture vertebrae (most common),* (ii) *Colle's fracture,* (iii) *Fracture neck femur.*
- Serum calcium, phosphate and alkaline phosphatase are normal in osteoporosis.

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1481. A patient presents with wrist trauma. On investigations patient is diagnosed to have a sprained wrist, without any evidence of fracture. There is tenderness in anatomical snuffbox. Which ligament is commonly involved -

a) Scapholunate ligament

b) Radial collateral ligament

c) Lunotriquetral ligament

d) Ulnar collateral ligament

Correct Answer - A
Answer- A. Scapholunate ligament
Lunate and scapholunate ligmante- Tender in lunate fracture and scapholunate dissociation

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1482. Trendelenburg test is positive due to injury to which of the following nerve?

a) Obturator

b) Sciatic

c) Superior Gluteal

d) Inferior Gluteal

Correct Answer - C

Ans. C. Superior Gluteal

A positive Trendelenburg is relatively non-specific and may indicate:

- Pain (e.g. due to osteoarthritis of the hip joint)
- Weak hip abductors (gluteus medius, gluteus minimus)
- Short femoral neck/ fracture of neck
- Dislocation or subluxation of the hip
- Neuropathy

Gluteus medius and minimus are supplied by Superior Gluteal nerve.

Trendelenburg test

Normally when a person is made to stand on one leg, the hip abductors of the ipsilateral side raise the opposite and the unsupported side of the pelvis. If the abductor mechanism is defective, the unsupported side of the pelvis drops and this is known as positive Trendelenburg test.

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1483. False about osteoarthritis is ?

a) Involves synovial joints

b) Progressive softening of the articular cartilage

c) It is an inflammatory arthritis

d) Marginal osteophytes are produced

Correct Answer - C
Ans. is 'c' i.e., It is an inflammatory arthritis
Osteoarthritis (OA) is a chronic disorder of synovial joints in which there is progressive softening and disintegration of articular cartilage accompanied by new growth of cartilage and bone at the joint margins (osteophytes), cyst formation and sclerosis in the subchondral bone, mild synovitis and capsular fibrosis.
The term osteoarthritis is a misnomer as it is a *non-inflammatory condition.*
The right term is osteoarthrosis or degenerative joint disorder because it is a degenerative wear - and - tear process occuring in joints.

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1484. Shentons line is seen in X ray of -

a) Antero-posterior pelvis with both hips

b) Antero-posterior shoulder

c) Lateral cervical spine

d) Lateral lumbosacral spine

Correct Answer - A

Answer- A. Antero-posterior pelvis with both hips

With a normal hip Shenton's line, which continues from the inferior border of the femoral neck to the inferior border of the pubic ramus, looks continuous; any interruption in the line suggests an abnormal position of the femoral head.

Narrowing of the joint 'space' is a sign of articular cartilage loss, a feature of both inflammatory and non-inflammatory arthritis.

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1485. False about osteogenesis imperfecta is -

a) Defective collagen formation

b) Associated with cataract formation

c) Autosomal dominant

d) Known as Brittle bone disease

Correct Answer - B

Answer- B. Associated with cataract formation

Osteogenesis imperfecta, also known as brittle bone disease or Lobstein syndrome, is a hereditary condition characterized by fragility of bones, deafness, blue sclera, laxity of joints and tendency to improve with age.

It is a disease of defective collagen formation. Therefore, collagen - containing tissues are affected, e.g. bone, teeth, skin, tendons and ligaments.

Primary defect in bone is defective osteoid formation.

It is usually transmitted as an autosomal dominant, but in a severe variant of the disease the parents are normal and a fresh gene mutation or autosomal recessive inheritance is postulated.

Radiology shows wormian bones in the skull.

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1486. Most mobile segment of vertebral column is -

a) Cervical

b) Thoracic

c) Lumbar

d) Sacral

Correct Answer - A
Answer- A. Cervical
The spinal column can be divided into three mobile (cervical, thoracic, and lumbar regions) and two fused (sacrum and coccyx).
Cervical region: It is the most mobile region of the spinal column with range of motion of approximately 80 - 90 degrees of flexion, 70 degrees of extention, 20 - 45 degrees of lateral flexion, and upto 90 degrees of rotation to both sides

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1487. Chauffeur fracture is -

a) Extra - articular fracture of styloid process

b) Intra - articular fracture of styloid process

c) Intra - articular fracture of base of 1st metacarpal

d) Extra - articular fracture of base of 1st metacarpal

Correct Answer - B
Answer- B. Intra - articular fracture of styloid process
An intra-articular oblique fracture of the styloid process of the radius.

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1488. Treatment of choice in Acute myositis ossificans is:

a) Immobilization of elbow

b) Short wave diathermy

c) Passive movements of arm

d) Active exercises

Correct Answer - A

A i.e. Immobilization of elbow

* Rest of the affected part during the period while the process is active is the basic principle of treatment(TN 91) .
* No massage should be given.
* If any physical therapy is going on, it should be discontinued immediately.
* All passive movements and vigorous exercise must be stopped. Very gentle exercise must be started.
* Indomethacin and radiotherapy prevent calcification. However, radiotherapy should be avoided in children.
- Surgical excision is indicated if myositis ossificans interferes with function. It is worth noting that **surgical excision is contraindicated during active phase when calcification matures.**

*** Surgical excision, if required, should be done only after complete maturation of ossification.**

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1489. What is the treatment for patient with hypertrophic nonunion with deformity at fracture site?

a) No treatment required

b) Fixation only

c) Bone grafting only

d) Fixation with bone grafting

Correct Answer - B

Answer- B. Fixation only

Patients with hypertrophic nonunion have sufficient vascularity to heal but stability is lacking or normal axial alignment has not been restored. Thus in a case of hypertrophic nonunion without deformity, fixation alone will provide stability and will lead to healing.

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1490. Proximal tibial epiphysis fuses at -

a) 12 - 14 years

b) 14 - 16 years

c) 16 - 18 years

d) 18 - 20 years

Correct Answer - C
Answer- C. 16 - 18 years
The tibia ossifies from three centres, one in the shaft and one in each epiphysis. Ossification begins in midshaft at about the seventh intrauterine week.
The proximal epiphysial centre is usually present at birth: at approximately 10 years a thin anterior process from the centre descends to form the smooth part of the tibial tuberosity.

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1491. Management of displaced non comminuted intercondylar humerus fracture is -

a) Open reduction internal fixation

b) Above elbow plaster slab application

c) Olecranon pin traction

d) External fixation

Correct Answer - A

Answer- A. Open reduction internal fixation

It depends upon the displacement.

An undisplaced fracture needs support in an above-elbow plaster slab for 3-4 weeks, followed by exercises.

A displaced fracture is treated generally by open reduction and internal fixation.

In cases with severe comminution, olecranon pin traction is given to reduce the fracture and maintain the reduction.

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1492. MC cause of Primary Amenorrhea is ?

a) Constitutional/idiopathic

b) RMKH syndrome

c) Ovarian dysgenesis

d) None of the above

Correct Answer - C
Ans, C. Ovarian dysgenesis
MC cause of primary amenorrhea is ovarian dysgenesis/Turner syndrome.

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1493. An infertile woman has bilateral tubal block at cornua diagnosed on hysterosalpingography. Next treatment of choice is ?

a) IVF

b) Laparoscopy and hysteroscopy

c) Tuboplasty

d) Hydrotubation

Correct Answer - B

Ans. B. Laparoscopy and hysteroscopy

Laparoscopy (with chromopertubation with methylene blue dye):

- Best investigation for tubal patency, as tubal patency can be confirmed under vision, and besides, any pathology can simultaneously be corrected with operative laparoscoPy.

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1494. Fetal karyotyping can be done by all, EXCEPT?

a) Cordocentesis

b) Amniocentesis

c) CVS

d) Fetal skin biopsy

Correct Answer - D

Ans. D. Fetal skin biopsy

Percutaneous umbilical blood sampling (PUBS) is also known as cordocentesisis performed after 16 weeks' gestation' under USG guidance a needle is inserted into umbilical vein. This technique apart from karyotyping is also useful for evaluating fetal metabolism and hematologic abnormalities.

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1495. 55 year old lady complaints of mass in the vagina, which is reducible & increases on defecation. The diagnosis is?

a) Rectal prolapse

b) Uterine prolapse

c) Cervical fibroid

d) Vaginal cancer

Correct Answer - B

Ans. B. Uterine prolapse

Prolapse is defined as the displacement of an organ from its normal anatomical position.

Genital prolapse occurs due to weakness of the suPPorts.

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1496. Moschowit's surgery is done for -

a) Cervical cancer

b) Fundal fibroids

c) Uterine prolapse

d) Enterocele prevention

Correct Answer - D
Ans. D. Enterocele prevention
Enteroceleformatiol can be prevented by Moschowit's or Halban's surgeries, in both the POD is obliterated.

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1497. Which of the following is used in quantifying hirsutism?

a) Bishop score

b) Rotterdam criteria

c) Ferriman-Gallwey score

d) All of the above

Correct Answer - C

Ans. C. Ferriman-Gallwey score

The Ferriman-Gallwey score is a method of evaluating and quantifying hirsutism in women. The method was originally published in l96l by D. Ferriman and J.D. Gallwey in the Journal of Clinical Endocrinology.

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1498. MC heart disease in pregnancy is ?

a) MS

b) AS

c) MR

d) WPW syndrome

Correct Answer - A
Ans. A. MS
Mitral stenosis is the MC valvular heart disease in pregnancy.

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1499. Rate of cervical dilatation in primigravida is ?

a) 0·8 cm/hour

b) 1.2 cm/hour

c) 1.5 cm/hour

d) 2 cm/hour

Correct Answer - A

Ans. A. 0·8 cm/hour

The normal rate of cervical dilatation in active phase is 1.2 cm/hour in primigravidae and 1.5 cm/hour in multiparae.

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1500. Complications of pre eclampsia are all except ?

a) Post datism

b) DIC

c) Blindness

d) None of the above

Correct Answer - A
Ans. A. Post datism

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1501. What is monitored in a patient of pre eclamsia ?

a) Uric acid

b) Platelet count

c) LFT

d) All of the above

Correct Answer - D
Ans. D. All of the above

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1502. Not an absolute contraindication for methylergometrine use is ?

a) Eclampsia

b) Heart disease

c) Rh incompatibility

d) After delivery of first baby in twin pregnancy

Correct Answer - C

Ans. C. Rh incompatibility

Methylergometrine (Methergin) can be used in the prevention and treatment of PPH. Absolute contraindications to the use of Methergin are:

1. Chronic hypertension/preeclampsia/eclampsia
2. Heart disease inpregnancy
3. Afterthe deliveryofthefirstbabyofthe twins.

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1503. A lady with 35 weeks of pregnancy is admitted in view of first episode of painless bout of bleeding yesterday. On examination Hb 10g%, BP 120/70 mmHg, uterus relaxed, and cephalic floating. FHS regular. Next line of management is ?

a) Cesarean section

b) Induction of labor

c) Wait and watch

d) Blood transfusion

Correct Answer - C

Ans. C. Wait and watch

This is a case of placenta previa (painless bleeding, relaxed uterus, and floating head all point to placenta previa).

In this case, all the criteria for conservative management are fulfilled and therefore the answer is wait and watch for fetal lung maturity.

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1504. G3P2L2 with previous 2 LSCS with anterior placenta previa has got a very high risk of which complication?

a) Placenta acreta

b) Vasa previa

c) Abruption

d) None of the above

Correct Answer - A

Ans. A. Placenta acreta

The term placenta accreta is used to describe any placental implantation in which there is abnormally firm adherence to the uterine wall.

The incidence of placenta accreta, increta, and percreta has increased, most likely because of the increasedcesarean delivery rate.

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1505. B-Lynch suture is applied on ?

a) Cervix

b) Uterus

c) Fallopian tubes

d) Ovaries

Correct Answer - B

Ans. B. Uterus

Described first by Christopher, B-Lynch is a compression suture placed on uterus in the management of atonic PPH when the medical methods fail.

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1506. A 28-year-old primigravida with 33 weeks of pregnancy suddenly complains of headache, oliguria, and blurred vision. Her BP is 180/110 and urine albumin is +3. The line of further management is ?

a) Wait and watch

b) LSCS

c) Induction of labor

d) Anticonvulsant + antihypertensive therapy

Correct Answer - D

Ans. D. Anticonvulsant + antihypertensive therapy

The patie nt is a case of severe preeclampsia, with impending eclampsia.

Magnesium sulfate is the drug of choice for eclampsia and also for impendingeclampsia.

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1507. Which of the following statements concerning abdominal pregnancy is correct?

a) Gastrointestinal symptoms are quite often very severe

b) Fetal survival is approximately 80%

c) Aggressive attempts should be made to remove the placenta at the time of initial surgery

d) Placenta can be left in situ at the time of surgery

Correct Answer - D

Ans. D. Placenta can be left in situ at the time of surgery

Although leaving the placenta in the abdomen following surgical delivery predisposes to riskesof postoperative infections, the risk is much less severe than the hemorrhage associated with attempts of removal of placenta at the time of primary surgery.

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1508. Complete vesicular mole is associated Theca leutin csyts in what percentage of cases ?

a) <5

b) 5-15

c) 20-40

d) 60-70

Correct Answer - C
Ans. C. 20-40
Theca-lutein cysts: In many cases of hydatidiform mole, the ovaries contain multiple theca-lutein cysts.

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1509. Patient with 3 months amenorrhoea, c/o hyperemesis and vaginal bleeding since one month. O/E=uterus 16 weeks with absent fetal heart sound. The diagnosis is ?

a) Vesicular mole

b) Ectopic pregnancy

c) IUFD

d) Abruptio placentae

Correct Answer - A

Ans. A. Vesicular mole

Vesicular mole is an abnormal condition of placenta where there is hydropic degeneration and proliferative changes in the young chorionic villi. It is a benign condition with malignant potential.

Uterine bleeding is almost universal and may vary from spotting to profuse hemorrhage.

It is the MC presenting feature.

The discharge has' white currant in red currant juice' appearance.

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1510. Patient with choriocarcinoma & jaundice, treatment of choice is ?

a) Methotreaxate

b) Actinomycin D

c) Suction evacuation

d) Combination of all

Correct Answer - B
Ans. B. Actinomycin D

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1511. EMACO regime is for ?

a) Ca cervix

b) Ca endometrium

c) Ca ovary

d) Chorio carcinoma

Correct Answer - D
Ans. D. Chorio carcinoma

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1512. Stage Ib cervical cancer is diagnosed in a young woman. Assuming that the cancer is confirmed to the cervix and that intraoperative biopsies are negative, which of the following structure would not be removed during the radical hysterectomy?

a) Uterosacral and uterovesical ligaments

b) Pelvic nodes

c) The entire parametrium on both sides of the cervix

d) Both ovaries

Correct Answer - D
Ans. D. Both ovaries
Preservation of the ovaries is generally acceptable, particularly in younger women.

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1513. In vaginal hysterectomy, the first clamp includes:

a) Uterine artery

b) Fallopian tube & round ligament

c) Uterosacral ligament

d) None of the above

Correct Answer - C

Ans. C. Uterosacral ligament

Vaginal hysterectomy with pelvic floor repair is done for vaginouterine prolapse in peri/post menopausal women.

- First clamp includes uteroscaral&Macenrodt's ligament.
- Second clamp includes uterine artery.
- Third clamp includes cornual structures.

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1514. Therapeutic conization is indicated in?

a) Microinvasive carcinoma cervix stage lal

b) CIN III

c) Unsatisfactory colposcopy with cervical dysplasia

d) Cervical metaplasia

Correct Answer - A
Ans. A. Microinvasive carcinoma cervix stage lal
In stage 1A1, there is no lymph node involvement.
Therapeutic conization is the surgery of choice for stage 1A1 in young patients who are desirous of future childbearing

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1515. Cervical cancer III B treatment is ?

a) Wertheim's operation

b) Radiotherapy

c) Chemotherapy

d) Chemoradiation

Correct Answer - D
Ans. D. Chemoradiation
Cisplatin is given before RT as a radiosensltizer, hence the preferred terminology is CTRT (concurrent chemo and radiotherapy also known as chemoradiation).

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1516. Wertheim's hysterectomy is done for ?

a) 1A1 cervical cancer

b) IB cervical cancer

c) Germ cell ovarian cancer

d) All of the above

Correct Answer - B
Ans. B. IB cervical cancer
Stages of Ca cervix that are operable (radical/Wertheim's hysterectomy) are 1A2, IB, and IIA.

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1517. Radio isotope used in Ca cervix Brachytherapy ?

a) Cobalt

b) Iridium

c) Cesium

d) All of the above

Correct Answer - D
Ans. D. All of the above

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1518. Ca vulva spreads to all except ?

a) Urethra

b) Deep inguinal nodes

c) Superficial inguinal nodes

d) Paraaortic nodes

Correct Answer - D
Ans. D. Paraaortic nodes
Modes of spread of ca. vulva
1. Direct: Urethra, Vagina, Rectum, pelvic bones
2. Lymphatic: MC route of spread.
3. Lymphatics oflabia to superficial, then deep inguinal nodes & then pelvic nodes
4. Hematogenous route rare & may occur in advanced cases

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1519. Which ovarian tumour can present with menorrhagia ?

a) Demoid cyst

b) Epithelial ovarian cancer

c) Granulosa cell tumour

d) Yolk sac tumour

Correct Answer - C
Ans. C. Granulosa cell tumour
Granulosa cell tumours (or granulosa-theca cell tumours) are tumours that arise fromgranulosa cells. These tumoursare part of the sex cordgonadal stromal tumour or non-epithelial group of tumours.

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1520. All are risk factors for ectopic pregnancy except ?

a) Past history

b) Tubal ligation failure

c) IVF

d) LNG IUCD

Correct Answer - D

Ans. D. LNG IUCD

IUCD: The modern copper IIJD does not increase the rkk of ectopic pregnancy. However, there is a relative increase in tubal pregnancy (7 times more) should pregnancy occur with IUCD in situ.

Studies have demonstrated that up to l% of pregnancies achieved through IVF or GIFT can result in a heterotopic gestation.

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1521. A 21-year-old female presents to emergency ward with 2 months of amenorrhea with pain in abdomen and shock. BP 90/60 mmHg and Hb 6 gm%. Urine pregnancy test is found positive. Next immediate line of treatment is ?

a) Laparotomy

b) IV fluids & cross match

c) Medical management

d) Laparoscopy

Correct Answer - B

Ans. B. IV fluids & cross match

This is a case of ruptured ectopic pregnancy. Positive Urine Pregnancy Test indicates that the amenorrhea is due to pregnancy. Pain and shock in early pregnancy are mostly always due to ruptured ectopic.

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1522. DOC for medical management of ectopic pegnancy ?

a) Actinomycin D

b) Intramuscular Methotrexate

c) Intramuscular Methotrexate

d) PGf2 alpha

Correct Answer - B
Ans. B. Intramuscular Methotrexate

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1523. What is not used in PCOS ?

a) OC pills

b) Cyclical progesterones

c) Myoinositol

d) Danazol

Correct Answer - D
Ans. D. Danazol
Insulin sensitizers are also used to tackle insulin resisitance.
Danazol has no role in PCOS.

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1524. Pearl necklace appearance is characteristic of ?

a) Ectopic pregnancy

b) PCOS

c) Endometriosis

d) PID

Correct Answer - B

Ans. B. PCOS

USG features of polycystic ovarian syndrome (PCOS)

- Greater than 12 follicles measuring between 2 mm and 9 mm in diameter located peripherally, resulting in a pearl necklace appearance.
- Increased echogenicity of ovarianstroma and /or ovarian volume greater than 10 ml.

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1525. Violin string adhesion [violent string sign] is seen in ?

a) PCOS

b) Endometriosis

c) Fitz - high -curtis syndrome

d) Ruptured ectopic pregnancy

Correct Answer - C

Ans. C. Fitz - high -curtis syndrome

Laparoscopy is performed, the liver capsule will appear inflamed, with classic violin string adhesions in the perietal peritoneum beneath the diaphragm.

Five percent to 10% of women with acute PID develop symptoms of perihepatic inflammation, the Fitz-High-Curtis syndrome.

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1526. Dysgerminoma spreads mainly via ?

a) Hematogenous route

b) Lymphatic route

c) Direct spread

d) Does not spread

Correct Answer - B
Ans. B. Lymphatic route
Dysgerminomas are the most common malignant germ cell tumors, accounting for about 30% to 40% of all ovarian cancers of germ cell origin.
In the 25% of patients who present with metastatic disease, the tumor most commonly spreads via the lymphatics.

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1527. Triad of symptoms of endometriosis are all except ?

a) Infertility

b) Dysmenorrhea

c) Dyspareunia

d) Cyclical hematuria

Correct Answer - D

Ans. D. Cyclical hematuria

Endometriosis is defined as the presence of normal functional endometrial mucosa (glands and stroma) abnormally implanted in locations other than the uterine cavity. It was first described by Von Rokitansky About one third of women with endometriosis remain asymptomatic.

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1528. Complication of Benign Ovarian Cysts is ?

a) Torsion

b) Intracystic hemorrhage

c) Pseudomyxoma perotonei

d) All of the above

Correct Answer - D
Ans. D. All of the above

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1529. Level 1 support of uterus & vagina is ?

a) levator ani

b) Perineal body

c) Uterosacral ligaments

d) All of the above

Correct Answer - C

Ans. C. Uterosacral ligaments

Delancey's three levels of pelvic (uterus, vagina) support=

- Level 1: The uterosacral-cardinal ligament complex provides attachment of the uterus and vaginal vault to the sacrum. Uterine prolapse occurs when this ligament complex breaks or is attenuated.

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1530. MC presenting symptom of fibroid is ?

a) Menorrhagia

b) Infertility

c) Lump

d) Compression

Correct Answer - A
Ans. A. Menorrhagia

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1531. Medical management of fibroids is with all except -

a) Progesterone

b) Mifepristone

c) Ulipristal acetate

d) Misoprostol

Correct Answer - D
Ans. D. Misoprostol

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1532. Endometriosis is ?

a) Endometrium within the myometrium

b) Functional endometrium outside the uterus

c) Myometrium within the endometrium

d) Rare squamous variety of CA endometrium

Correct Answer - B

Ans. B. Functional endometrium outside the uterus

Endometriosis

- Definition: Presence of functional endometrium at places other than uterus (ectopic endometrial tissue)

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1533. Samson's theory for Development of Endometriosis is ?

a) Celomic metaplasia

b) Hematogenous spread

c) Lymphatic spread

d) Retrograde menstruation

Correct Answer - D

Ans. D. Retrograde menstruation

Theories for Development of Endometriosis

1. Samson's theory of retrograde menstruation: the most accEpted theory
2. Ivanoff and Meyer: Celomic metaplasia
3. HematogenoussPread
4. Lymphatic spread (Halban's theory)
5. Direct implantation.

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1534. Examination of a 26 years old obese infertile female reveals. Fixed retroverted uterus & Nodularity of the uterosacral ligaments. The most likely diagnosis is ?

a) PCOS

b) Endometriosis

c) Adenomyosis

d) TB

Correct Answer - B

Ans. B. Endometriosis

Pelvic examination of endometriosis: May be normal or may reveal the following:

- Fixed retroverted uterus
- Pelvic tenderness
- Nodules in the POD
- Nodularity of the uterosaoal ligaments
- Unilateral or bilateral adnexal mass
- Speculum examination may reveal bluish nodules in posterior fornix.

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1535. Investigation of choice for endometriosis ?

a) USG

b) CA 125

c) MRI

d) Laparoscopy

Correct Answer - D
Ans. D. Laparoscopy
Laparoscopy is the Investigation ofChoice.

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1536. Powder burnt lesion seen in ?

a) PID

b) PCOS

c) Endometriosis

d) All of the above

Correct Answer - C

Ans. C. Endometriosis

Laparoscopy findings in endometriosis are:

- Chocolate cysts
- Blueberrylesion
- Red/flame lesion
- Powder burn sPots
- Red/purple raspberry lesion
- Subovarian adhesions
- Matchstick burnt sPots
- White lesion.

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1537. Treatment of choice in patient with infertility & endometriosis ?

a) IUI

b) Surgery

c) Danozol

d) Ovulation induction

Correct Answer - B

Ans. B. Surgery

Surgical Management

.. Patients with infertility: laparoscopic ovarian cystectomy, adhesiolysis, and electrocoagulation of endometriotic implants.

2. If the family is complete and the patient has severe pain or menstrual complaints: hysterectomy with bilateral salpingooophorectomy. Generally combined approach is adopted where laparoscopic surgery is followed by GnRHa.

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1538. Surgery of choice in 42 year old P3L3 with diffuse endometriosis is ?

a) Ovarian cystectomy & adhesiolysis

b) Hysterectomy

c) Hysterectomy with BSO with resection of endometrial implants

d) Ovarian cystectomy & adhesiolysis & resection of implants

Correct Answer - C

Ans. C. Hysterectomy with BSO with resection of endometrial implants

If the family k complete and the patient has severe pain or menstrual complaints: Hystetectomy with bilateralsalpingo- oophorectomy with resection of all endometriotic implants.

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1539. The most common Mullerian anomaly is?

a) Mullerian agenesis (RMKH)

b) Unicornuate uterus

c) Bicornuate uterus

d) Septate uterus

Correct Answer - D
Ans. D. Septate uterus
Septate uterus is the MC Mullerian anomaly.

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1540. SEAM used in DUB is ?

a) Clomiphene

b) Raloxifene

c) Ormiloxifene

d) Mifepristone

Correct Answer - C
Ans., C. Ormiloxifene
Ormeloxifene is a third generation benzopyran SERM which blocks the cytosol receptors by its competitive binding and selectively acts on estrogen recePtors as agonist and antagonist in different reproductive tissues.

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1541. Choice of adjuvant treatment for endometrial carcinoma stage IA, grade I is?

a) Radiotherapy

b) Chemotherapy

c) Chemotherapy plus radiotherapy

d) No treatment

Correct Answer - D

Ans. D. No treatment

Management of Ca endometrium

A) Stage I=1:

- Surgery (total abdominal hysterectomy with bilateral salpingo-oophorectomy with lymph node sampling), followed by radiotherapy.
- Only patients with stage 1A, grades 1 and 2 do not require postoperative radiotherapy.

B) Stage 2:

- Modified radical hysterectomy, bilateral salpingo-oophorectomy with lymph node dissection, followed by radiotherapy.

C) Stages 3 and 4:

- Debulking surgery followed by radiotherapy.

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1542. A 46-year-old P3L3 complains of menorrhagia since 3 months. Next line of management is ?

a) D & C

b) Progesterone x 6 months

c) OC pills x 6 months

d) Hysterectomy

Correct Answer - A

Ans. A. D & C

In Patients with menorrhagia in perimenopausal age group (40+), always make the diagnosis first before proceeding with any treatment.

It is necessary to rule out endometrial hyperplasia and cancer in this age group. Hence, histopathological examination of endometrium is required, and therefore D 6C should be done first.

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1543. Simple hyperplasia with atypia will progress to ca endometrium in % of cases ?

a) 1-2

b) 3-4

c) 8-9

d) 20

Correct Answer - C
Ans. C. 8-9

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1544. Grade 1 Ca endometrium, there is presence of % non sqoumaous growth ?

a) <5

b) 6-25

c) 25-50

d) >50

Correct Answer - A
Ans. A. <5
FIGO Grading of Endometrial Carcinoma
Histopathologic degree of differentiation:

- Gl: < 5% nonsquamous or nonmorular growth pattern.

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1545. Definitive treatment of adenomyosis is ?

a) OC pills

b) NSAIDS

c) Endometrial ablation

d) Hysterectomy

Correct Answer - D
Ans, D. Hysterectomy
Hysterectomy

- The only way to completely cure this condition is to have a hysterectomy.

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1546. MC cause for hysterectomy is ?

a) Prolapse

b) Fibroids

c) Ca endometrium

d) Acute PID

Correct Answer - B
Ans. B. Fibroids
A hysterectomy is an operation to remove the uterus.
A woman may have a hysterectomy for different reasons, including:

- Uterine fibroids that cause pain, bleeding, or other problems.

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1547. Prolonged surgery time of vaginal hysterectomy would lead to damage to which nerve ?

a) Obturator

b) Pudendal

c) Peroneal

d) Sural

Correct Answer - C

Ans. C. Peroneal

Most commonly injured lower extremity nerve in patients undergoing surgery in lithotomy position is the common paroneal nerve(LA-S2).

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1548.

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Which of the following is not a part of PID -

a) Endometritis

b) Cervicitis

c) Tuboovarian abcess

d) Peritonitis

Correct Answer - B
Ans. B. Cervicitis
PID is a spectrum of infection & inflammation of upper genital tract organs involving uterus, fallopian tubes, ovaries, pelvic peritoneum&parametrium.
Cervicitis is not included.

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1549. Triad for clinical diagnosis PID includes all except ?

a) Fever

b) Lower abdominal pain

c) Cervical motion tenderness

d) Bilateral adnexal tenderness

Correct Answer - A
Ans. A. Fever
Diagrosis ofPID is often difficult.
The "gold standard" for diagnosis relies on the laparoscopic appearance ofFallopian tube inflammation but cost and limited availability of the technique often preclude its use.
In theabsence of laparoscopy, the triad of lower abdominal pain, cervical motion tenderness, and bilateral adnexal tenderness has been advocated as the minimal criterion for clinical diagnosis of PID.

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1550. Acute salpingitis is most commonly caused by ?

a) N. gonorrhoeae

b) Chlamydia trachomatis

c) Mycoplasma

d) Staphylococcus

Correct Answer - B
Ans, B. Chlamydia trachomatis
Option B is now a days slightly more commoner than option a) & hence the best option to mark
If polymicrobial/mixed infection, is in the option, then that is the answer.

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1551. Tumor marker for germ cell malignancy are all except?

a) LDH

b) Alkaline phosphatase

c) AFP

d) CA-125

Correct Answer - D
Ans. D. CA-125

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1552. Acute pelvic pain could be due to ?

a) Ectopic pregnancy

b) PID

c) Corpus luteum hematoma

d) All of the above

Correct Answer - D
Ans. D. All of the above

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1553. Nugent score includes all except -

a) Lactobacillus

b) Gardnerella

c) Mobiluncus

d) Gonococcus

Correct Answer - D
Ans. D. Gonococcus
Nugent's criteria for diagnosis ofbacterial vaginosis
Many use Nugent's criteria to quantify or grade bacteria via Gram stain of vaginal samples.
In brief, Nugent's criteria evaluated 3 types of bacteria via Gram stain: Lactobacillus, Bacteroides/ Gardnerella, and Mobiluncus.

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1554. Clue cells are seen in?

a) Bacterial vaginosis

b) Candidiasis

c) Chlamydiasis

d) Trichomoniasis

Correct Answer - A
Ans. A. Bacterial vaginosis
Bacterial vaginosis/vaginitis (BV) is a common vaginal infection. Clue cells (vaginal epithelial cells covered with coccobacilli and the cells appear as stippled or granular). Clue cells are diagnostic ofBV.

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1555. HSG findings suggestive of genital koch ?

a) Beaded tubes

b) Honeycomb uterus

c) Golf club tube

d) All of the above

Correct Answer - D
Ans. D. All of the above
In active tuberculosis, HSG is contraindicated.

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1556. A pregnant lady presents with genital warts. The best management for her is ?

a) Imiquimod

b) Trichloroacetic acid

c) Podophyllin

d) Cryotherapy

Correct Answer - D

Ans,. D. Cryotherapy

For reasons unknown genital warts increase in size and number during pregnancy.

Treatment options during pregnancy include cryotherapy and trichloroacetic acid (TCA).

Out of the two, cryosurgery is more effective than TCA and hence is prefnred.

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1557. 28 year old female complaints of foul smelling yellowish urethral discharge since 4 days. History of burning micturation. History of sexual contact with multiple partners 2 days before the onset of symptoms. Most likely diagnosis is ?

a) Syphilis

b) Chancroid

c) Gonococcal urethritis

d) Non-infective urethritis

Correct Answer - C

Ans. C. Gonococcal urethritis

History of foul smelling mucopurulent discharge , & short incubation period with high risk exposure clinches the diagnosis

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1558. Twin-peak sign is seen in ?

a) All Monozygotic twins

b) Monochorionic twins

c) Dichorionic twins

d) Siamese twins

Correct Answer - C
Ans. C. Dichorionic twins

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1559. In ca Cervix treatment, point A receives ?

a) 3000 cGy

b) 5000 cGy

c) 7000 cGy

d) 10,000 cGy

Correct Answer - C
Ans. C. 7000 cGy
Point A and Point B are in relation to radiotherapy for Ca Cervix.

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1560. Ashermans syndrome is characterized by ?

a) Amenorrhea

b) Menorrhagia

c) Polymenorrhea

d) All of the above

Correct Answer - A

Ans. A. Amenorrhea

Intra-uterine adhesions

- Asherman syndrome was identified in 1948 as uterine synechiae.
- These intra-uterine adhesions (IUA) are often associated with amenorrhea or infertility.

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1561. GARDASIL vaccine is for -

a) HPV 16,18

b) HSV

c) HPV 6,11,16,18

d) Hepatitis B

Correct Answer - C
Ans. C. HPV 6,11,16,18

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1562. LNG content of Mirena is -

a) 20 gms

b) 20 mg

c) 52 gms

d) 52 mgs

Correct Answer - D
Ans. D. 52 mgs
Mirena/LNG IUD/LNG 2O/levonova/LNG IUS

- Mirenacontainsatotalof52mglevonorgestrel(LNG).LNGisreleasedintothe at a rate of approximtely20pg/day.

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1563. Which of the following decreases the risk of Pelvic Inflammatory Disease ?

a) Cu T

b) Spermicidal agents

c) O.C. pills

d) Today vaginal sponge

Correct Answer - C
Ans. C. O.C. pills
Several studies have shown that regular O.C. pill users are protected from PIDs to the extent of 50%.

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1564. Patient with 45 XO , what HRT to be given ?

a) Growth hormone + E+P

b) Estrogene

c) No HRT Needed

d) HRT only after 45 years

Correct Answer - A

Ans. A. Growth hormone + E+P

Growth hormone (GH) therapy has become the standard of care for girls with turner syndrome and should be considered as soon as decreased linear growth velocity is apparent.

Initial hormone replacement involves low dose estrogenmonotherapy.

Progestagenreplacement is generally added 1-2 yearsafter starting estrogen or upon breakthrough bleeding.

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1565. Tamoxifen decreases the risk of which cancer?

a) Breast

b) Endometrium

c) Ovary

d) All of the above

Correct Answer - A
Ans. A. Breast
Tamoxifen has been used for more than 30 years to treat patients with breast cancer.
Tamoxifenworks against breast cancer, in part, by interfering with the activity of estrogen, a female hormone that promotes the growth of breast cancer cells.
In October 1998, the U.S. Food and Drug Administration (FDA) approved the use of tamoxifen to reduce the incidence of breast cancer in women at increased risk of the disease.

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1566. Raloxifene decreases the risk of which cancer?

a) Breast

b) Cervix

c) Ovary

d) All of the above

Correct Answer - A
Ans. A. Breast
After an average of 81 months, raloxifene reduces risk of invasive breast cancer by about 38 percent compared to tamoxifenreducing breast cancer by about 50 percent.

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1567. Least failure rate ?

a) CuT

b) MIRENA

c) DMPA

d) O.C. PILLS

Correct Answer - B
Ans. B. MIRENA

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1568. Nuva ring contains ?

a) EE+ etonogestrel

b) LNG + EE

c) LNG

d) EE+ drosperinone

Correct Answer - A

Ans. A. EE+ etonogestrel

Contraceptive rings

- Nuva Ring: It is a soft vaginal ring that releases 15 microgram EE and 120 microgram ENG, etonogestrel,the active metabolite of desogestrel, per day as a controlled delivery system.

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1569. Which drug used for endometriosis can cause increase in hepatic enzyme & adverse lipid profile -

a) 0. C. pills

b) GnRh analogues

c) Both of the above

d) None of the above

Correct Answer - A
Ans. A. 0. C. pills
O. C. pills (progesterone component) are a/w increase in LDL & decrease in HDL cholesterol but estrogens have opposite effect. Cholestasis &cholestatic jaundice are occasional side effects of O. C. pills.

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1570. Norgestimate in OC pills has the following advantage ?

a) Reduces venous thrombosis

b) Is cheaper than standard OC pills

c) Reduces acne and hirsutism

d) Useful in heart disease

Correct Answer - C

Ans. C. Reduces acne and hirsutism

Three newer progestogens, namely desogestrel, gestodene, and norgestimatecan decrease the ameanilhirsutism as compared to olderprogesterones, which actually can cause oily skin and acne.

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1571. Which of the following is not an ideal candidate for IUCD insertion ?

a) Previous LSCS

b) Lactating mother

c) Acute PID

d) All of the above

Correct Answer - C
Ans. C. Acute PID

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1572. Betamethasone given to preterm patient for all except ?

a) Fetal lung maturity

b) Decrease intraventricular hemorrhage

c) Prevents periventricular leukomalacia

d) Prevent PPH

Correct Answer - D

Ans. D. Prevent PPH

Steroids (dexamethasone or betamethasone) are given to enhance fetal lung maturity and they also decrease the incidence intraventricular hemorrhage.

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1573. A 32-year-old female with mild hypertension. Two days after normal delivery, she develop seizures, headache. No proteinuria was there. On imaging she was found to have parasagittal infarction and hematoma 3x2cm.The most probable cause is?

a) Eclampsia

b) Superior sagittal sinus thrombosis

c) Pituitary apoplexy

d) Subarachnoid hemorrhage

Correct Answer - B

Ans. B. Superior sagittal sinus thrombosis

The various etiologies for dural sinus thrombosis are:

1. Thrombophilia (factor V Leiden mutation, prothrombin gene mutation20210, deficiencies of antithrombin, protein C and protein S, APLA syndrome, hyperhomorysteinemia)
2. Pregnancy
3. Postpartumstate

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1574. Penicillamine use in pregnancy is associated with this fetal complication ?

a) Conradi syndrome

b) Renal anomalies

c) Thymus hypolplasia

d) Cutis laxa

Correct Answer - D
Ans. D. Cutis laxa
Pencillamine interferes with synthesis of collagen & elastin & can cause :elastosisperforansserpiginosa and localized cutis laxa.

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1575. The prostaglandin most commonly used at term for induction of labor is ?

a) PGI2

b) PGE1

c) PGE2

d) PGF2a

Correct Answer - C
Ans. C. PGE2
PGE2 is most commonly used at term for induction of labor.

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1576. HCG levels at which Expectant management of Ectopic pregnancy can be done :

a) 10000 IU/L

b) 1000 IU/L

c) 2500 IU/L

d) 5000 IU/L

Correct Answer - B
Ans. B. 1000 IU/L
Initial HCG levels < 1000 IU/l & subsequent levels are falling.

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1577. Outcomes of occipito posterior position?

a) Deep transverse arrest

b) Occipito sacral arrest

c) Face to pubis delivery

d) All of the above

Correct Answer - D
Ans, D. All of the above

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1578. RMP can perform MTP in first trimester if he has assisted in MTPs -

a) 5

b) 15

c) 25

d) 50

Correct Answer - C
Ans, C. 25
A registered medical practitioner shall have one or more of the following experience or training in gynecology and obstetrics namely =

- If he has assisted a registered medical practitioner in the performance of twenty-five cases of medical termination ofpregnancy of which at least five have been performed independently,

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1579. Crying of fetus in utero is called as ?

a) Vagitus uterinus

b) First cry

c) Utero vaginalis

d) Vagitus vagina

Correct Answer - A
Ans, A. Vagitus uterinus

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1580. True about cephalhematoma is :

a) Crosses the suture lines

b) Always present at birth

c) Ventouse delivery is a risk factor

d) All of the above

Correct Answer - C
Ans. C. Ventouse delivery is a risk factor
The usual causes of a cephalohematoma are a prolonged second stage of labor or instrumental delivery,particularly ventouse.

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1581. Inner cell mass differentiates into ?

a) Chorion

b) Trophoectoderm

c) Embryo

d) All of the above

Correct Answer - C
ANs. C. Embryo
Blastocyst enlarges & the zonapellucida undergoes lysis , this is called zona hatching.
The cells on the outer side become trohoectoderm which differentiates into chorion.
The cells on the inner side form inner cell mass which differentiates into embrvo.

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1582. Embryo is called "fetus" after how many weeks post fertilization/conception ?

a) 6

b) 8

c) 10

d) 12

Correct Answer - B

Ans. B. 8

Embryonic period begins at 3rd week following ovulation/fertilization & extends upto 8 weeks post conception (10 weeks from LMP).
Fetal period begins after 8 weeks post conception (10 weeks from LMP) & ends in delivery.

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1583. Utero-placental circulation is established days after fertilization ?

a) 5

b) 10

c) 15

d) 20

Correct Answer - B
Ans. B. 10
The uteroPlacental circulation is established 9-10 days after fertilization.
Fetoplacental circulation is established 2l days post fertilization.

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1584. Pregnancy is contraindicated in all of the following except -

a) Primary Pulmonary Hypertension

b) Eisenmenger's syndrome

c) Marfan's with aortic root dilation

d) WPW syndrome

Correct Answer - D
Ans, D. WPW syndrome

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1585. Which heart disease has the worst prognosis/maximum mortality in pregnancy?

a) MS

b) AS

c) PDA

d) Eisenmenger's syndrome

Correct Answer - D
Ans. D. Eisenmenger's syndrome

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1586. Ovarian cycle can be correlated with all except ?

a) Endometrial sampling

b) Vaginal cytology

c) Blood hormonal levels

d) Estrous cycle

Correct Answer - D
Ans. D. Estrous cycle
Estrous cycle does not occur in human beings.

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1587. Endometrial biopsy to detect ovulation is done on which day of the menstual cycle ?

a) Day 8-9

b) Day 13-15

c) Day 21-23

d) Day 3-5

Correct Answer - C
Ans. C. Day 21-23
Endometrial Biopsy : Rarely done now a days for the purpose of iletecting ovulation.

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1588. The uterine blood flow at term is -

a) 50 mL/min

b) 100-150 mL/min

c) 350-375 mL/min

d) 500-750 mL/min

Correct Answer - D
Ans. D. 500-750 mL/min
Uteroplacental blood flow increases progressively during pregnancy and ranges from 5N)-800 mL/minat term.

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1589. Godell's sign is ?

a) Dusky hue of the vestibule

b) Softening of the cervix

c) Increased pulsations felt through the lateral fornices

d) Regular and rhythmic contractions during bimanual examination

Correct Answer - B
Ans. B. Softening of the cervix

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1590. In fetus, insulin production begin at weeks of gestation -

a) 4-6

b) 8-12

c) 14-18

d) 24-28

Correct Answer - B
Ans. B. 8-12
Reaching 8 to 10 weeks into development, the pancreas starts producing insulin, glucagon, somatostatin, and pancreatic polypeptide.

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1591. Limb bud appear at what weeks of gestation?

a) 3

b) 4

c) 6

d) 9

Correct Answer - B

Ans. B. 4

The upper extremity is first discretely visible as a bulge or limb bud that develops on the ventrolateral wall of the embryo on day 26 (4-mm crown-to-rump length).

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1592. Features of non severe/mild pre ecampsia are all ecxept -

a) Diastolic BP <100 mm Hg

b) Systolic BP< 160 mm Hg

c) Mild IUGR

d) No premonitory symptoms

Correct Answer - C
Ans., C. Mild IUGR

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1593. FERNING is due to ?

a) Estogen & sodium chloride

b) Progesterone & sodium chloride

c) HCG

d) All of the above

Correct Answer - A
Ans, A, Estogen & sodium chloride
Cervical mucus is relatively rich in sodium chloride when estrogen (but not progesterone) is being produced.

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1594. Second wave of trophoblastic invasion occurs at weeks of gestation?

a) 8-11

b) 10-12

c) 12-15

d) 16-20

Correct Answer - C

Ans, C. 12-15

The timing of the development of the uteroplacental vessels has been described in waves, or stages, over the course of gestation. The first wave occurs before 12 weeks post-fertilization and consists ofinvasion and modification of the spiral arteries of the decidua. Between 12 and 16 weeks pos-fertilization, the second wore occurs. This involves invasion of the intramyometrial parts of the spiral arteries, converting narrow lumen, muscular spiral arteries into dilated, low-resistance uteroplacental vessels.

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1595. Abstinence period before semen analysis is ?

a) 1-2 days

b) 3-5 days

c) 5-7 days

d) 7-9 days

Correct Answer - B
Ans. B. 3-5 days
The ideal specimen for examination is after 3-5 days of abstinence.

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1596. Engaging diameter in face presentation is -

a) Suboccipitobregmatic

b) Mentovertical

c) Submentobregmatic

d) Occipitofrontal

Correct Answer - C
ANs, C. Submentobregmatic

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1597. Least likely to cause dysmenorrhea -

a) Endometriosis

b) Adenomyosis

c) Uterine polyp

d) Cervical polyp

Correct Answer - D
Ans, D. Cervical polyp

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1598. LH surge is due to ?

a) Progesterone

b) Estrogen

c) AMH

d) All of the above

Correct Answer - B
Ans, B. Estrogen
3-4 days before the ovulation, estrogen level crosses a certain limit (threshold level).

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1599. Menopause is defined as ?

a) Presence of hot flushes

b) Cessation of menses for 1 year

c) Cessation of menses for 6 months

d) Cessation of menses for 2 years

Correct Answer - B

Ans, B. Cessation of menses for 1 year

Menopause is defined as the permanent cessation of menses for 7 year and is physiologically correlated with the decline in estrogen secretion resulting from the loss offollicular/ovarian function.

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1600. Symptoms of menopause are all except ?

a) Hot flushes

b) Night sweats

c) Decrease libido

d) Intermittent hypotension

Correct Answer - D

Ans, D. Intermittent hypotension

Hot flushes

- The classic symPtom associated with estrogen deficiency is the hot flash, also known as hot flush
- This symptom is described as 'recurrent, transient periods of flushing, sweating and a sensation ofheat, often accompanied by palpations, feeling of anxiety and sometimes followed by chills".

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1601. MENOPAUSE is diagnosed by ?

a) Estradiol <20 pg/ml

b) Progesterone <40 ng/dl

c) FSH>40 IU/L

d) LH > 20 IU/L

Correct Answer - C
Ans, C. FSH>40 IU/L
As per the American Association of clinical Endocrinologists, the diagnosis of menopause is confirmed by FSH levels >40 IU/L.

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1602. The velocity of sperm is ?

a) 1-2 cm/hr

b) 2-4 cm/min

c) 1-4 mm/min

d) 1-4 mm/hr

Correct Answer - C
Ans. C. 1-4 mm/min
The velocity of a sperm in fluid medium is usually 1-4 mm/min. This allows the sperm to move towards an ovum in order to fertilize it.

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1603. After ejaculation semen liquefies in ?

a) 10 minutes

b) 30 minutes

c) 75 minutes

d) 120 minutes

Correct Answer - B
Ans. B. 30 minutes
Following ejaculation, the semen forms a gel which provides protection for the sperm from the acidic environment of the vagina. The gelisliquefied within 20-30 minute by enzymes from the prostate gland.

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1604. During pregnancy, true statement about CVS is ?

a) Cardiac output decreases

b) Right axis deviation

c) Increase in left ventricular end diastolic diameter

d) All of the above

Correct Answer - C
Ans, C. Increase in left ventricular end diastolic diameter
2D echo: Increase in left ventricular end diastolic diameter.
Increase in left and right atrial diameters.

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1605. MC site of implantation is ?

a) Fallopian tube amullary part

b) Fallopian tube isthmus

c) Fundus of uterus

d) Cornu of uterus

Correct Answer - C
Ans, C. Fundus of uterus
Implantation occurs in the endometrium on the anterior or posterior wall of the body near the fundus on the sixth day following fertilization (corresponding to the 20th day of the menstrual cycle).

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1606. Alpha subunit of hCG is similar to ?

a) FSH

b) LH

c) TSH

d) All of the above

Correct Answer - D
Ans, D. All of the above
Human chorionic Gonadotropin (hcG) isstructurallyrelated to three other glycoproteinhormones LH, FSH, and TSH.

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1607. Placental hormone with highest carbohydrate content is -

a) HCG

b) Human pregnancy specific beta glycoprotein

c) HPL

d) Relaxin

Correct Answer - A
Ans, A. HCG
HCGhas the highest carbohydrate content of any human hormone-30%.

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1608. The pelvic inlet usually is considered to be contracted if its shortest anteroposterior diameter is less than -

a) 12 cm

b) 10 cm

c) 8 cm

d) 14 cm

Correct Answer - B

Ans. B. 10 cm

The pelvic inlet usually is considered to be contracted if its shortest anteroposteriordiameter is less than10 cmor if the greatest transverse diameter isless than12 cm

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1609. Azoospermia with normal FSH would indicate ?

a) Hypothalamic failure

b) Testicular failure

c) Obstruction of vas defrens

d) All of the above

Correct Answer - C
Ans, C, Obstruction of vas defrens

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1610. Causes of male infertility ?

a) Idiopathic

b) Varicocele

c) Yq 11 micro deletion

d) All of the above

Correct Answer - D
Ans, D. All of the above

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1611. Fetal thyroid gland is able to synthesize hormones by weeks of gestation ?

a) 6-7

b) 7-8

c) 10-12

d) 12-14

Correct Answer - C
Ans, C. 10-12
Fetal thyroidglandisabletosynthesizehormonesby 10-12 weeksofgestation.

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1612. Poor prognosis in first trimester USG is ?

a) No fetal pole at 5 weeks

b) No cardiac activity at 5 weeks

c) No gestational sac at 4 weeks

d) No cardiac activity at 8 weeks of gestation

Correct Answer - D
Ans, D. No cardiac activity at 8 weeks of gestation
Absence of embryo with heartbeat 22 weeks after a scan that showed a gestational sac without a yolk sac

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1613. All are true about post partum depression except -

a) Symptoms resolve in 10-12 days

b) Affects both sexes

c) SSRIs are effective

d) None of the above

Correct Answer - A
Ans, A. Symptoms resolve in 10-12 days

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1614. Nerve injured in McRoberts maneuver is ?

a) Lumbosacral trunk

b) Obturator nerve

c) Femoral nerve

d) Pudendal nerve

Correct Answer - C
Ans, C. Femoral nerve
McRoberts maneuver is to be done in cases of shoulder dystocia. When the maternal thighs are markedly flexed and abducted, pressure from the overlying inguinal iigament may lead to femoral nerve injury.

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1615. Most conclusive clinical sign of pregnancy is ?

a) Uterine enlargement

b) Cervical softening

c) Amenorrhea

d) Fetal heat sound auscultation

Correct Answer - D
Ans. D. Fetal heat sound auscultation
FHS auscultation is the most conclusive clinical sign of pregnancy.

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1616. CRL when cardiac activity can be detected earliest by TVS -

a) 1-4mm

b) 1 cm

c) 6-7mm

d) 2-4 cm

Correct Answer - A

Ans, A. 1-4mm

Fetal heart beat can be detected as early as just under 6 weeks gestation on good quality, high frequency transvaginalultrasound, as a crown rump length (CRL) of as little as 1-2 mm.

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1617. Kamla, 30 years old, P2L2 with 3.2 x 4.1 cm fibroid uterus, complains of menorrhagia and is on symptomatic treatment since 6 months. The patient refuses surgery. Next line of management is ?

a) GnRH analogs

b) Danazol

c) Myomectomy

d) Uterine artery embolization

Correct Answer - D

Ans, D. Uterine artery embolization

UAE can be used as a therapy for symptomatic patients who refuse or want to avoid surgery.

After embolization, there is 60-65% decrease in size of fibroids over a period of 6-9 months, and so the patient's symPtoms may decrease or disaPPear.

If the patient is still symptomatic after 1 year, then surgery should be considered.

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1618. Living ligature of the uterus is ?

a) Endometrium

b) Middle layer of myometrium

c) Inner layer of myometrium

d) Parametrium

Correct Answer - B
Ans, B. Middle layer of myometrium
Middle crisscross fibres act as living ligature during involution of the uterus and prevent blood loss.

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1619. In partograms recommended by 'WHO' the distance between the alert and action lines is ?

a) 1 hour

b) 2 hours

c) 4 hours

d) 5 hours

Correct Answer - C

Ans. C. 4 hours

The concept of alert line' and ‘action line’ was introduced by Philpott and Castle in 1972.

The action line can be placed at 2 – 4 hours interval to the right and parallel to alert line.

In partograms recommended by'WH0'the distancebetween the alert and action lines is 4 hours.

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1620. Surgical excision of corpus luteum before weeks of gestation, results in miscarriage

a) 6-7

b) 9-11

c) 11-12

d) 12-14

Correct Answer - A

Ans, A, 6-7

Surgical excision of corpus luteum (luteoctomy) before 7 weeks of gestation, uniformly precipitated an abrupt decrease in serum progesterone concentration followed by miscarriage

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1621. Factors responsible for development of OHSS include ?

a) Histamine

b) Cytokines

c) Vascular Endothelial Growth Factor

d) All of the above

Correct Answer - D
Ans, D. All of the above
VEGF is considered to be the most important.

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1622. MVA syringe is used for ?

a) First trimester MTP

b) 2nd trimester MTP

c) Vacuum delivery

d) All of the above

Correct Answer - A

Ans, A, First trimester MTP

Manual vacuum aspiration (MvA) is a safe and effective method of abortion that involves evacuation of the uterine contents by the use of a hand-held plastic aspirator.

It is appropriate for treatment of incomplete abortion for uterine sizes up to 12 weeks from the last menstrual period (including miscarriage, spontaneous abortion and removal of retained products from an induced abortion), first-trimester MTP and endometrial biopsy.

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1623. Diihrssen incision is taken on -

a) Fallopian tube

b) Ovary

c) Incompletely dilated cervix

d) Fully dilated cervix

Correct Answer - C
Ans, C, Incompletely dilated cervix
Occasionalln especially with small preterm fetuses, the incompletely dilated cervix will not allow vaginal delivery of the after-coming head ofthe breech.
In such cases, Duhrssen incisions are usually necessary (cut the cervix at l0 and 2 o'clock positions).

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1624. A 27-year-old female with placenta previa had severe bleeding. What is the most likely outcome post delivery?

a) Galactorrhea

b) Diabetes

c) Absence of menstrual cycle

d) Cushing syndrome

Correct Answer - C

Ans. c. Absence of menstrual cycle

Sheehan syndrome, also known as postpartum hypopituitarism or postpartum pituitary necrosis, is hypopituitarism caused by necrosis due to blood loss and hypovolemic shock during and after childbirth. Most common initial symptoms of Sheehan syndrome are agalactorrhea (absence of lactation) under difficulties with lactation. Many women also report amenorrhea or oligomenorrhea after delivery.

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1625. Woman has 100 ml blood loss every 30 days. This is called as ?

a) Menorrhagia

b) Polymenorrhea

c) Hypomenorrhea

d) Normal menses

Correct Answer - A
Ans. A. Menorrhagia
Normal blood loss during menses is around 35 ml (20-80 ml)
Blood loss more than 80 ml is menorrhagia

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1626. Menometrorrhagia is ?

a) Heavy periods

b) Intermenstrual bleeding

c) Heavy & irregular bleeding

d) Uterine bleeding occurring at regular intervals of less than 21 days

Correct Answer - C

Ans. C. Heavy & irregular bleeding

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1627. Prevalence of breech presentation at full term is ?

a) 10%

b) 6-7%

c) 3-4%

d) 1-2%

Correct Answer - C
Ans. C. 3-4%

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1628. The shortest conjugate is ?

a) True conjugate

b) Obstetric conjugate

c) Diagonal conjugate

d) Anatomical conjugate

Correct Answer - B
Ans. B. Obstetric conjugate
Obstetric conjugate (10 cm)
Distance between midpoint of sacral Promontory to the prominent bony projection in the midline on inner surface of symphysis pubis.

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1629. Shortest transverse diameter is ?

a) BPD

b) Bitemporal diameter

c) Bimastoid diameter

d) All are equal in length

Correct Answer - C
Ans. C. Bimastoid diameter
Bimastoid diameter = 7.5 cm
Occipitofrontal diameter → 11.5 cm

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1630. With reference to fetal heart rate, a nonstress test is considered reactive when?

a) Two fetal heart rate accelerations are noted in 20 minutes

b) One fetal heart rate acceleration is noted in 20 minutes

c) Two fetal heart rate accelerations are noted in 10 minutes

d) Three fetal heart rate accelerations are noted in 30 minutes

Correct Answer - A

Ans. A. Two fetal heart rate accelerations are noted in 20 minutes

Reactive (Reassuring) NST

Two or more accelerations of > 15 beats/minute above the baseline, lasting for > 75 seconds arc present in 20-4O minutes observation period.

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1631. Variable deceleration is seen in ?

a) Head compression

b) Uteroplacental insufficiency

c) Cord compression

d) None of the above

Correct Answer - C
Ans, C. Cord compression
Variable decelerations are due to cord compression (oligohydramnios in labor)

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1632. Modified BIOPHYSICAL PROFILE is ?

a) NST + FETAL TONE

b) FETAL TONE + AFI

c) NST + AFI

d) NST+ FETAL TONE + AFI

Correct Answer - C
Ans, C. NST + AFI
Modified BPP = NST &AFI
BPP has 5 components

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1633. If fetus is having hypoxia, which of the BPP parameter will be affected last ?

a) Fetal tone

b) Fetal breathing movement

c) Fetal movements

d) NST

Correct Answer - A

Ans. A. Fetal tone

First activity to appear, Fetal Tone at about 7.5-8.5 weeks, is also presumably the last activity to disappear with progressively worsening hypoxia.

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1634. Test used to detect genetic abnormality in embryo,before transferring it to the uterus in IVF is ?

a) Embryo cell biopsy

b) CVS

c) ICSI

d) All of the above

Correct Answer - A

Ans, A. Embryo cell biopsy

PGD, involves removing a cell from an IVF embryo to test it for a specific genetic condition (cystic fibrosis' for example) before transferring the embryo to the uterus.

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1635. In IVF, embryos are transferred back to uterine cavity at cells stage ?

a) 2

b) 2-4

c) 4-8

d) 8-16

Correct Answer - C
Ans, C. 4-8
Typically embryos ate transferred at the cleavage stage (Day 2 or 3 after oocyte retrieval).
Day three embryos ate called cleavage stage embryos and have approximately 4 - 8 cells.

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1636. Azoospermic patient can be a father of a child, by which of the following?

a) IUI

b) ZIFT

c) ICSI

d) Not possible & counsel regarding adoption

Correct Answer - C
Ans. C. ICSI
PESA= percutaneous epididymalsperm aspiration
MESA= microscopic epididymal sperm aspiration
TESA= testicular sperm asPiration
TESE= testicular sperm extraction (testicular biopsy)

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1637. A primigravida with 36 weeks of pregnancy is in labor with 3 cm dilatation and minimal uterine contraction. On rupture of membranes, fresh bleeding is noted with late fetal deceleration up to 50 beats/min. The patient was taken for LSCS but fetus could no be saved. No abruptio or placenta previa was seen. The likely diagnosis is ?

a) Placenta previa

b) Revealed abruptio

c) Circumvallate placenta

d) Vasa previa

Correct Answer - D

Ans. D. Vasa previa

Vasa previa (I:2500) is a rare condition in which fetal blood vessels are in front of the presenting part and cross the cervix.

The condition has a high fetal mortality rate (50-95%). This is attributed to rapid fetal exsanguination, resulting from the vessels tearing when the cervix dilates, membrane ruPture.

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1638. All are components of Active Management of the Third Stage of Labor except ?

a) Uterotonic agent within 1 minute of birth

b) Massage of uterus before control cord traction

c) Control cord traction

d) None of the above

Correct Answer - B

Ans. B. Massage of uterus before control cord traction

Administer anuterotonic drug at the delivery of the anterior shoulder or afterwards, within one minute of the baby's birth.

Before performing AMTSL, gently palpate the woman's abdomen to rule out the presence of another baby. At this point, do not massage the uterus.

Perform controlled cord traction

Massage the uterus immediately

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1639. With which of the following events, the feto maternal haemorrhage risk is the least ?

a) Amniocentesis

b) Cordocentrsis

c) Chorionic villus sampling

d) Abruption

Correct Answer - D
Ans. D. Abruption

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1640. Infertility is defined as ?

a) Inability to conceive after 1 year of regular unprotected intercourse

b) Inability to conceive after 1 year of marriage

c) Inability to conceive after 2 years of marriage

d) Inability to conceive in spite of 2 years of regular unprotected intercourse

Correct Answer - A

ANS. A. Inability to conceive after 1 year of regular unprotected intercourse

Infertility is defined as an inability to conceive in spite of 1 year of regular unprotected intercourse

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1641. Cord prolapse is least likely with -

a) Transverse lie

b) Footling breech

c) Oligohydroamnios

d) Floating head

Correct Answer - C
Ans. C. Oligohydroamnios
Cord prolapse has been defined as the descent of the umbilical cord through the cervix alongside (occult) or past the presenting part (overt) in the vagina or outside the vulva in the presence of ruptured membranes

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1642. Ideal time to do Glucose challenge test in pregnancy is ?

a) 12-16 weeks

b) 20-24 weeks

c) 24-28 weeks

d) 30-34 weeks

Correct Answer - C
Ans. C. 24-28 weeks
O'sullivan Blood Sugar Screening Test (Glucose Challenge Test)
The ideal time to do this test is24-28 weeks of gestation (as insulin resistance in pregnancy is maximum at 28 weeks of gestation)

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1643. After IUFD, when does the mother develop DIC -

a) 48 hours

b) 1-2 weeks

c) 3-4 weeks

d) 6 weeks

Correct Answer - C
Ans. C. 3-4 weeks
Thromboplastin from the dead fetus can enter the maternal system and cause DIC.
This only happens when the dead fetus is retained inside for 3-4 weeks.

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1644. Folic acid required in first trimester of normal pregnancy -

a) 100 microgram

b) 400-500 microgram

c) 4 mg

d) 5 mg

Correct Answer - B

Ans, B, 400-500 microgram

Some NTDs are associated with a specific mutation in the methylene tetrahydrofolatereductase gene, the adverse effects of whichcan be largely overcome by periconceptional folic acid supplementation.

More than half of NTDs could be prevented with daily intake of 400 microgram of folic acid throughout the periconceptional period.

A woman with a prior pregnancy complicated by a neural tube defect can reduce the 23% recurrence risk by more than 70% if she takes 4 mg of folic acid for the month before conception and for the first trimester of pregnancy.

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1645. A 30-year-old is 14 weeks pregnant. She had two painless deliveries at 16 weeks earlier. Next line of management is ?

a) Cervical encerclage

b) Evaluation for diabetes mellitus and thyroid disorders

c) Cervical length assessment

d) Tocolytics

Correct Answer - C

Ans, C. Cervical length assessment

The patient had two painless abortions at 16 weeks in the past, so mostly it is a case of incompetent os.

Next line of management in these patients is frequent cervical length assessment: clinically or by USG.

The patient is evaluated more frequently and if the cervix is short (less than 2.5cm) than cervical encerclage has to be done.

Cervical encerclage is the surgery ofchoice for incompetent os, but the surgery itselfcan lead to complications such as uterine contractions, abortions, and PROM.

So the surgery is only to be done if it is indicated.

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1646. Upper two -third anterior vaginal wall prolapse is ?

a) Cystocele

b) Urethrocele

c) Rectocele

d) Enterocele

Correct Answer - A
Ans. A. Cystocele

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1647. Earliest sign after IUFD is ?

a) Overlapping of skull bones

b) Hyperflexion of spine

c) Gas in great vessel

d) Over crowding of ribs

Correct Answer - C
Ans. C. Gas in great vessel
Robert sign (gas in great vessels) - 12hrs after death.

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1648. True about Gartners cyst is ?

a) Retention cyst in remnants of Wolffian duct

b) Arises from mullerian duct

c) Commonly arises from cervix

d) Impulse on coughing

Correct Answer - A
Ans, A. Retention cyst in remnants of Wolffian duct

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1649. If the anal spincter is injured, it is which degree of Perineal Tear ?

a) First

b) Second

c) Third

d) Fourth

Correct Answer - C
Ans, C. Third
Perineal Tears are classified into four categories

- First-degree tear: laceration is limited to the fourchette and superficial perineal skin or vaginal mucosa.
- Second-degree tear: laceration extends beyond fourchette, perinealskin and vaginal mucosa to perineal muscles and fascia, but not the anal sphincter.
- Third-degree tear: fourchette, perineal skin, vaginal mucosa, muscles, and anal sphincter are torn

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1650. If the rectal mucosa is injured, it is which degree of Perineal Tear ?

a) First

b) Second

c) Third

d) Fourth

Correct Answer - D
Ans, D. Fourth
Rectal mucosal tear is fourth degree tear.

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1651. Cryptomenorrhea occurs in ?

a) Fibroids

b) PCOS

c) Imperforate hymen

d) All of the above

Correct Answer - C

Ans, C. Imperforate hymen

Congenital

- Imperforate hymen: It is due to failure of disintegration of the central cells of Mullerian eminence that project into urogenital sinus
- TransversevaginalsePtum
- Atresia ofvagina, cervix.

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1652. Best indicator for ovarian reserve is ?

a) AMH

b) LH/FSH ratio

c) FSH

d) Estradiol

Correct Answer - A
Ans. A. AMH
AMH blood levels are thought to reflect the size of the remaining egg supply or “ovarian reserve"

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1653. HPL has activity similar to which hormone ?

a) Oxytocin

b) Growth hormone

c) Insulin

d) All of the above

Correct Answer - B
Ans. B. Growth hormone
Human placenta lactogen (hPL) was named so, because of its potent lactogenic & growth hormone like bioactivity as well as immunochemical resemblance to human growth hormone'

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1654. Which of the following is not a soft tissue marker of Down syndrome on USG ?

a) Increase NT

b) Absent nasal bone

c) Exomphalos

d) Polydactyly

Correct Answer - D
Ans. D. Polydactyly

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1655. In a case of recurrent spontaneous abortion the following investigation is unwanted ?

a) Hysteroscopy

b) Testing for antiphospholipid antibodies

c) Testing for TORCH infections

d) Thyroid function tests

Correct Answer - C
Ans. C. Testing for TORCH infections
Testingfor TORCH infections is now thought to be unwarranted.

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1656. Dilatation & evacuation is done for all ecxept ?

a) Inevitable abortion

b) Incomplete abortion

c) Threatened abortion

d) None of the above

Correct Answer - C

Ans. C. Threatened abortion

Inevitable abortion means the process ofexpulsion ofproducts ofconception has become irreversible. The expulsion of products of conception has not occurred but it is bound to happen and nothing can be done to stop this process.

When the entire products are not expelled, part of it is left inside the uterine cavity, it is called incomplete abortion.

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1657. WHO normal Hb value for a non pregnant adult female is ?

a) 10 gm/di

b) 11 gm /dl

c) 12 gm/dl

d) 13 gm/dl

Correct Answer - C
Ans. C. 12 gm/dl

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1658. Which of the following epidermal layer is dead layer?

a) Stratum basale

b) Stratum spinosum

c) Stratum corneum

d) Stratum granulosum

Correct Answer - C

Ans. C. Stratum corneum

Stratum corneum (Horny layer):

- This is the most superficial layer of epidermis and skin.
- Cells are fully keratinized and end up as anucleate dead cells.
- Therefore, stratum corneum is dead layer.
- Stratum corneum is last to develop 4 Therefore in premature newborn it is absent.

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1659. Langerhans cell are seen in which layer of skin?

a) Stratum basal

b) Stratum carneum

c) Stratum granulosum

d) Stratum spinosum

Correct Answer - D
Ans. D. Stratum spinosum
[Ref Venkataram 151/e p. 2]
Langerhans cells

- These cells are found in stratum spinosum and function as epidermal macrophages (Antigen presenting cells).
- These cells contain characteristic tennis racquet shaped granules (Birbeck granules).

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1660. Increase in the thickness of the prickle cell layer of the epidermis is called?

a) Spongiosis

b) Acanthosis

c) Hypergranulosis

d) Hyperkeratosis

Correct Answer - B
Ans. B. Acanthosis
[Ref Rook's 7th/e p. 7.36]

- Important terminology related to epidermal layers
- Separation of keratinocytes due to loss of intracellular bridges - Acantholysis
- Intracellular edema of keratinocytes Ballooning

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1661. Substance common in skin and hair is?

a) Keratin

b) Laminin

c) Nectin

d) Vimentin

Correct Answer - A
Ans. A. Keratin
[Ref: IADVL 3rd /e p. 12]

- Keratin is a family of fibrous structural proteins.
- Keratin is the protein that protects epithelial cells from damage or stress.
- Keratin is the key component of our skin, hair and nails.
- Its protein building blocks have amino acid chains, coiled, cross-linked and classified as either hard or soft.

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1662. Which of the following is a melanising agent?

a) Methoxsalen

b) Dapsone

c) Minocycline

d) Kojic acid

Correct Answer - A
Ans. A. Methoxsalen
[Ref Internet & IADVL 3'/e p. 756]

- Melanizing agents are drugs that increase sensitivity to solar radiation and promote re-pigmentation of de-pigmented areas of skin.
- Melanizing agents sensitize the skin to sunlight. As a result, erythema, inflammation and pigmentation occurs.

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1663. Fordyce spots involve?

a) Penis

b) Tongue

c) Fingers

d) Nails

Correct Answer - A
Ans. A. Penis
[Ref IADVL 3"1/e p. 1779]
Fordyce spots (Fordyce granules or Fordyce disease):

- Fordyce's spot represents ectopic sebaceous glands on lips (most common site) and oral mucosa.
- They may also appear on vulva and penis, where they are called Tyson's gland, i.e., ectopic sebaceous gland at penis (prepuce) and vulva is called tyson's gland.
- These glands have histopathology similar to normal sebaceous glands, despite their ectopic location.

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1664. Most common etiology of erythema multiforme is?

a) Idiopathic

b) Drugs

c) HSV

d) TB

Correct Answer - A

Ans. A. Idiopathic

[Ref: Neena Khanna Yale p. 61, 63]

Erythema multiforme

- Most of the cases of erythema multiforme are idiopathic, but amongst the causative agents Herpes simplex virus is the most important cause.
- Erythema multiforme is an acute, often self limited erutption characterized by a distinctive clinical eruption, the hallmark of which is the Target lesion (Iris lesion or Bulle's eye lesion).

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1665. Hypopigmented macules are found in?

a) Addison's disease

b) Porphyria

c) Cutaneous mastocytosis

d) Tuberous sclerosis

Correct Answer - D

Ans. D. Tuberous sclerosis

[Ref Rook's 7th/e p. 17.37-17, 39.58-39.59; Behl 10thie p. 154]

Causes of localized hypopigmentation (Macule/Patch):

Primary Cutaneous disorders:

- Vitiligo
- Pityriasis versicolor
- Pityriasis alba
- Postinflammatory
- Nevus depigmentosus (achromicus)
- Nevus anemicus
- Piebaldism
- Chemical leukoderma
- Idiopathic guttate Hypomelanosis

Systemic diseases:

- Scleroderma
- Tuberous sclerosis
- Sarcoidosis
- Cutaneous T-cell lymphoma
- Leprosy (tuberculoid & Indeterminate)
- Onchocerciasis
- Hypomelanosis of Ito
- Incontinetia pigmenti (Stage IV)

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- Vogt - Koyangi - Harada disease

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1666. Which of the following disease is closely related to enetropathy?

a) Linear Ig A disease

b) Pemphigus foliaceous

c) Dermatitis herpetiformis

d) Erythema multiforme

Correct Answer - C

Ans. C. Dermatitis herpetiformis

[Ref: Behl 10m/e p. 293]

- Dermatitis herpetiformis is a disease of the skin caused by the deposition of IgA in papillary dermis and along the epidermal basement membrane zone (Dermoepidermal junction).
- Almost all patients of dermatitis herpetiformis have an associated gluten sensitive enteropathy.

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1667. Residual Hypopigmentation following a drug reaction, is best known as?

a) Vitiligo

b) Chemical leukoderma

c) Post inflammatory hypomelanosis

d) Piebaldism

Correct Answer - C

Ans. C. Post inflammatory hypomelanosis

[Ref IADVL 3"1/e p. 747-748]

- Among given options, postinflammatory hypomelanosis is the best answer.
- understand let us have a look at the definition few important terms.
- Vitiligo is also an acquired condition with loss of pigmentation but most cases are idiopathic.
- It is mainly considered to be an autoimmune condition.
- Precipitated by hormonal changes, acute emotional trauma or stress or any condition leading to immune imbalance.
- So, any hypomelanosis resulting after inflammation is known as post inflammatory hypomelanosis (including leucoderma).
- Sometimes both the terms are used synonymously.
- Whereas the term 'chemical leucoderma' is used only when there repeated exposure (contact) to some specific chemical.
- Therefore among given options, postinflammatory hypomelanosis is the best answer as drug reaction is an inflammatory condition leading to residual hypopigmentation.

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1668. Most common pattern of onychomycosis is?

a) Distal and lateral subungual

b) Proximal subungual

c) White superficial

d) Total dystrophic

Correct Answer - A

Ans. A. Distal and lateral subungual

[Ref IADVL 3fli/e p. 266]

Distal and lateral subungual:

- DSO is the most common form (90%) of onychomycosis.
- Characterized by invasion of the nail bed and underside of the nail plate beginning at the hyponychium and migrates proximally through the underlying nail matrix
- DSO is usually caused by the dermatophyte T. rubrum.
- Infection of the toenails being much more common than infection of the fingernails

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1669. Which of the following is not a feature of dermatomyositis?

a) 'V' sign

b) Holster sign

c) Pokiloderma

d) Groove sign

Correct Answer - D

Ans. D. Groove sign

[Ref: Rooks 7th/e p. 127-38; IADVL 3'/e p. 1236]

- Groove sign (a depression along the course of a vein or between muscle groups) is seen in deep morphea.

Cutaneous signs od dermatomyositis

1. Gottron's papules : lilac or violaceous papules on knuckles and dorsa of hands
2. Gottron's sign : violaceous erythema with edema over shoulders, arms and forearms
3. Heliotrope sign : violaceous erythema with edema over eyelids, periorbital region
4. Poikiloderma : atrophy of skin, hypopigmentation, dialalted blood vessels over trunk
5. Mechanic hand : symmetrical hyperkeratosis on ulnar aspect of thumb and radial aspect of fingers
6. Shawl sign : violaceous erythema extending from dorsolateral aspect of hands, forearms and arms to shoulders and neck.
7. 'V' sign : violaceous erythema in a V shaped distribution over anterior neck and chest.
8. Holster sign : b/1 symmetrical, patchy macular violaceous erythema displayibg a reticuloid or levidoid array over the lateral aspect of

upper thigh and hips.
). Calcinosis cutis : calcium deposits in skin (in juvenile variant)
). Miscellaneous signs : Photosensitivity, vasculitis, panniculitis, Nail-fold telangiectasia

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1670. Not a feature of candidal intertrigo is?

a) Obesity is a risk factor

b) C. albicans is the most common causative species

c) Central scaling

d) Satellite lesions

Correct Answer - C

Ans. C. Central scaling

[Ref Neena Khanna's 4th/e p. 294]

Candidal intertrigo

- Infection of skin folds is called candidal intertrigo. It is characterized by reddened (erythematous) plaques, with satellite pustules (peripheral pustules). There may be fine scales at periphery.
- Over the regions covered with thick stratum corneum, i.e., toe webs and Finger webs, the lesion appear as moist, white colored plaques. Virtually any body fold may be affected. Groins, axillae, submammary folds in females, toes & finger webs are common sites of affection.
- Lesions persisting for a long time lead to the development of superficial painful erosions that take a longer period to heal. This is called "erythema of lacquer.

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1671. Scaling is not feature of which of the following?

a) Tinea

b) Lichen planus

c) Herpes zoster

d) Reiter's disease

Correct Answer - C
Ans. C. Herpes zoster
[Ref Beh110th/e p. 254-268; Neena Khanna 3"Ye p. 37]

- In herpes there is crusting but no scaling.
- Papulo-squamous disorders have following two characteristics : -
- Papule (solid elevated skin lesion < 1 cms) or plaques (solid elevated lesion > 1 cm). ii) Scales (visible exfoliation of the skin which represnts visible shedding of skin).
- "Papulosquamous disorders manifest papules surmounted by scales".

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1672. A 40 years old male patient presents with multiple erythematous annular lesions with peripheral scales arranged predominantly on trunk. Treatment of choice is?

a) Topical steroids

b) Systemic steroids

c) Systemic Azathioprine

d) Topical antifungal

Correct Answer - A

Ans. A. Topical steroids

[Ref: Beh110`Ve p. 263]

Pityriasis rubra pilaris

- Clinical presentation of the patient in question suggests the diagnosis of PRP for which treatment of choice is topical steroids and salicylic acid.

Treatment

- Localized lesions - Topical corticosteroids + Keratolytics (Salicylic acid, urea)
- Erythroderma - Vitamin A, Acitretin (Retinoids), oral methotrexate.

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1673. Woronoff's ring is a feature of?

a) Psoriasis

b) Lichen planus

c) Pityriasis rosea

d) Pemphigus

Correct Answer - A

Ans. A. Psoriasis

[Ref Rooks 7"Ve p. 35.1-35.63]

- Clinical features of Psoriasis (psoriasis vulgaris)
- Psoriasis occurs at all ages, most patients are young or middle aged adults.

The typical lesion is nummular round plaque which has following characteristic features:

- Well defined
- Profuse, silvery white, powdery scales (Candle drop scales) - Losely adherent and easily drops.
- Bright red erythmatous base.
- Plaque is often surrounded by a hypopigmented halo Ring of Woronoff.

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1674. Most important factor in causation of Ingrown toe nail is?

a) Fungal infection

b) Ill fitting shoes

c) Genetic predisposition

d) Nutritional deficiency

Correct Answer - B

Ans. B. Ill fitting shoes

Ill-fitting shoes:

- Ingrown toenail(unguis incarnates/ onychocryptosis)
- It is a common painful condition in which the nail grows so that it cuts into one or both sides of the paronychium or nail bed.
- While ingrown nails can occur in the nails of both the hands and the feet, they occur most commonly with the toenails.
- Presents with pain, tenderness, redness and swelling along one or both sides of the affected nail.

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1675. Which of the following is not a feature of lichen planus?

a) Pterygium

b) Spontaneous healing

c) Scarring alopecia

d) Not premalignant

Correct Answer - D

Ans. D. Not premalignant

[Ref Behl/e p. 265; Rooks 7th /e p. 5.13]

- Very rarely chronic ulcerative lesions may develop malignant changes, i.e., squamous cell carcinoma. Clinical features of lichen planus.

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1676. Which of the following is not true for scabies?

a) Wrist is common site in children

b) Burrows are intradermal lesions

c) Papules and pustules are due to hypersensitivity to mite

d) Itching generalized

Correct Answer - B

Ans. B. Burrows are intradermal lesions

[Ref Behl 10th/e p. 179]

- Burrow is the serpentine (S-shaped), thread like gray-brown line which represent the intraepidermal tunnel created by the moving female mite in stratum corneum.
- Burrow is Pathognomic of scabies.
- Burrows are difficult to demonstrate in infant.

Clinical features of scabies

1. Severe itching is the most prominent symptom, and has following characteristic features :

- Worse at night
- Generalized
- Affecting several family members

2. In Scabies, severe itching typically worsen at night, most notably along the web spaces of fingers, wrists, elbows, axillae and groin area - Areas know as circle of Hebra.
3. Papules and papulovesicles due to hypersensitivity to mite.
4. Pustules can occur due to secondary infection.
5. Excoriation and scratch marks.
6. History of involvement of family member

1677. Scabies is caused by?

a) Mite

b) Tic

c) Virus

d) Fungus

Correct Answer - A

Ans. A. Mite

[Ref Behl 10thie p. 179]

- Scabies is an intensly pruritic skin infestation caused by Sarcoptes scabiei, an acarus (mite).
- Scabies usually affects children but can occur at any age.
- More common in low socioeconomic strata as overcrowding and poor hygiene facilitate transmission.
- The most important means of transmission is via direct contact with an infected individual.
- Scabes is a water washed disease which occurs due to inadequate use of water or improper hygiene.

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1678. Selenium sulphide is used in the treatment of?

a) Scabies

b) T. versicolor

c) T. cruris

d) Cutaneous leishmaniasis

Correct Answer - B

Ans. B. T. versicolor

[Ref Harrison 17th/e p. 318]

- Selenium sulphide (2.5%) in detergent base is applied all over body below neck (sparing the genitalia), left overnight and washed of next morning.
- Two to three applications applied once or twice a week usually clears the infection.

Treatment of P. versicolor

1. Systemic agents:- azoles such as ketoconazole, fluconazole or itraconazole.
2. Topical agents :
3. Azoles - clotrimazole, econazole, miconazole, ketoconazole.
4. Others - selenium sulfide(2.5%), sodium thiosulphate (20%) , whitfield's ointment (3% Salicylic acid + 6% Benzoic acid), zinc pyrithione(1%), tolnaftate, ciclopirox olamine.

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1679. First generation topical retinoid is?

a) Retinoic acid

b) Adapalene

c) Tazarotene

d) Acitretin

Correct Answer - A

Ans. A. Retinoic acid

[Ref Comprehensive dermatological drug therapy p. 254 & internet]

Retinoids

- The retinoids comprise a class of chemical compounds that are vitamers of vitamin A or are chemically related to it.
- Retinoids have found use in medicine where they regulate epithelial cell growth.
- Retinoids have many important functions throughout the body including roles in vision, regulation of cell proliferation and differentiation, growth of bone tissue, immune function, and activation of tumor suppressor genes.

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1680. Treatment for impetigo includes all except?

a) Topical mupirocin

b) Systemic erythromycin

c) Topical gentamycin

d) Systemic cephalosporins

Correct Answer - C

Ans. C. Topical gentamycin

[Ref IADVL 3rd/e p. 235]

* "Topical use of gentamycin should be avoided as gentamycin resistance can develop and it can be transferred between different species and strains of staphylococcus."

Treatment of impetigo

* Impetigo contagiosum
  - Localized 4 Topical antibiotics like fusidic acid or mupirocin
  - Extensive - Systemic antibiotics (erythromycin group to cover staphylococcus and streptococcus).
  - If response is poor, oxacillin-Clavulanic acid or cephalexin can be tried.

Bullous Impetigo

* Localized→ Topical fusidic acid or mupirocin
* Extensive 4 Systemic antistaphylococcal antibiotics (flucloxacillin, amoxicillin- clavulanic acid, methicillin or erythromycin)

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1681. Jock itch is caused by?

a) Epidermophyton floccosum

b) Candida albicans

c) Trichophyton tonsurans

d) Malassezia furfur

Correct Answer - A

Ans. A. Epidermophyton floccosum

[Ref Neena Khanna 3rd/e p. 242-244]

Tinea cruris (Jock itch):

- It is also known as Dhobi's itch.
- Tinea crusis is dermatophytic infection of the groin and adjacent skin.
- The classical appearance of tinea cruris is red (erythematous) scaly lesion with clear centre.
- Margins are well defined with raised borders.
- Itching is very prominent.
- The most common sites of involvement are genital area and medial aspect of upper thigh (Most common site of dermatophytosis in males).
- T cruris usually affect young adult male.
- In India trichophyton rubrum is the most common cause and in western countries epidermophyton floccosum is the most common cause.

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1682. Resorcinol is used in the treatment of?

a) Lichen planus

b) Acne

c) Vitiligo

d) Scabies

Correct Answer - B

Ans. B. Acne

[Ref Contact and occupational dermatology p. 195]

- Resorcinol is included in many antiseptic and keratolytic topical medications.
- Uses include psoriasis, hidradenitis suppurativa, eczema, acne, seborrhea, corns, calluses, warts, and other skin disorders.

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1683. Hertoghe's sign is seen in?

a) Atopic dermatitis

b) Cutaneous TB

c) Lichen planus

d) Psoriasis

Correct Answer - A

Ans. A. Atopic dermatitis

[Ref Indian Dermatol Online J. 2012 Sep-Dec; 3(3): 159-165.doi: 10.4103/2229-5178.101810]

- The Sign of Hertoghe or Queen Anne's sign is a thinning or loss of the outer third of the eyebrows (superciliary madarosis).
- It is a classical sign of hypothyroidism or atopic dermatitis.
- It can also be seen in leprosy, myxedema, follicular mucinosis, trichotillomania, ectodermal dysplasia, discoid lupus erythematosus, alopecia areata, syphilis, ulerythema ophryogenes, systemic sclerosis and HIV infection.

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1684. Preferred concentration of minoxidil for female androgenetic alopecia is?

a) 2%

b) 5%

c) 8%

d) 10%

Correct Answer - A

Ans. A. 2%

[Ref IADVL 3'/e p. 891]

- In female androgenic alopecia results are similar with 2% and 5% minoxidil but side effects are more with 5% solution.
- Whereas in males 5% is more efficacious.
- Therefore in a female patient 2% minoxidil is preferred whereas in males 5% solution is the preferred choice.

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1685. Normal epidermal turnover time is?

a) 1 week

b) 2 weeks

c) 3 weeks

d) 4 weeks

Correct Answer - C

Ans. C. 3 weeks

[Ref: Neena Khanna 3rd le p. 297; Roxburgh's 7th/e p. 62]

Treatment of scabies in children

- Topical permethrin (5% cream) is a safe and effective scabicide in children. It is recommended as a first-line therapy for patients older than 2 months of age.
- Because there are theoretical concerns regarding percutaneous absorption of permethrin in infants younger than 2 months of age, guidelines recommend 7% sulfur preparation instead of permethrin.

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1686. Treatment of choice for scabies in an infant < 6 months is?

a) BHC

b) Ivermactin

c) Permathrin

d) Crotomiton

Correct Answer - D
Ans. D. Crotomiton
[Ref: Neena Khanna 3rdle p. 297]
Ivermectin is the only oral drug, available for scabies treatment.

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1687. Oral treatment of choice for scabies is?

a) Albendazole

b) Itraconazole

c) Sulphur

d) Ivermactin

Correct Answer - D

Ans. D. Ivermactin

[Ref Behl 10th/e p. 406; Neena Khanna 3rd/e p. 50, 51]

Pityriasis rosea:

- P. rosea is self limiting disease, subsides with 6-12 weeks.
- P. rosea is a common scaly disorder, occuring usually in children and young adults (10-35 years).
- Characterized by round/oval pink brown patches with a superficial, centrifugal scale, distributed over trunk in a Christmas tree pattern.
- The exact etiology is not known, but it is considered to be a viral disease;
- Human Herpes virus 6 (HHV 6) and Human Herpes virus 7 (HHV 7) may play a role.

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1688. Pityriasis rosea clears with in?

a) 1-2 weeks

b) 2-4 weeks

c) 4-8 weeks

d) 6-12 weeks

Correct Answer - B

Ans. B. 2-4 weeks

[Ref Behl 10th/e p. 406; Neena Khanna 3rd/e p. 50, 51]

Pityriasis rosea:

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Clinical manifestations of P. rosea:

- The disease starts with an upper respiratory prodrome or a mild flu.
- After 1-2 weeks, annular erythematous plaque appears on trunk that is referred to as mother patch or herald patch.
- Over the next 1-2 weeks, fresh patch appear all over the trunk, in a Christmas tree configuration or Fir tree Configuration.

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1689. A known case of diabetes develops annular orange skin lesions, which disappear after biopsy. This phenomenon is known as?

a) Koebner's phenomenon

b) Reverse Koebner's phenomenon

c) Asboe Henson sign

d) Isotopic phenomenon

Correct Answer - B
Ans. B. Reverse Koebner's phenomenon
[Ref
https://www.researchgate.net/publication/268343496_Proposed_
classification_for_koebner_wolf
isotopic_renbok_koebner_nonreaction_isotopic_nonreaction_other_rela
Annular orange skin lesions in a diabetic indicate towards granuloma annulare.
There have been few reports of disappearance of lesions after biopsy in granuloma annulare.
This phenomenon is known as reverse Koebner's phenomenon.

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1690. Alopecia universalis is?

a) Loss of all the scalp hair

b) Loss of all body hair

c) Loss hair at the scalp margin

d) Male pattern hair loss

Correct Answer - B
Ans. B. Loss of all body hair
[Ref Fitzpatrick]
In alopecia aerata, when there is total loss of scalp hair it is called Alopecia totalis.
When there is loss of total body hair it is referred as Alopecia universalis.
Alopecia along the scalp margin is called ophiasis.
An inverse ophiasis pattern (sisaphio) is when it spares occipital region and affects rest of the scalp.

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1691. Treatment of choice for erytherodermic psoriasis is?

a) Prednisolone

b) Hydroxyurea

c) Acitretin

d) Ciclosporin

Correct Answer - C
Ans. C. Acitretin
[Ref: Neena Khanna 3rdle p. 46]
Methotrexate is the DOC for Erythrodermic psoriasis.
Acitretin is an alternative.

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1692. Multiple psoriatic lesions on hands. Treatment of choice is?

a) NBUVB

b) Systemic methotrexate

c) Topical steroids and salicylic acid

d) Systemic steroids

Correct Answer - C
Ans. C. Topical steroids and salicylic acid
[Ref Neena Khanna 3rd le p. 46]
Preferred treatment for localized psoriasis is topical coal tar or short contact, dithroanol.
Alternative is topical steroids + Salicylic acid.

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1693. False about Langer's lines is?

a) Remain constant throughout life time of a person

b) Correspond to the collagen fibers in dermis

c) Incision along these lines produces better scar

d) Skin along these lines is least flexible

Correct Answer - A

Ans. A. Remain constant throughout life time of a person

[Ref: IADVL text book of dermatology 3rd le p. 175 & Internet]

Langer's lines

- Also called cleavage lines, is a term used to define the direction within the human skin along which the skin has the least flexibility.
- These lines correspond to the alignment of collagen fibers within the dermis.
- Usually, a surgical cut is carried out in the direction of langer's lines, and incisions made parallel to langer's lines generally heal better and produce less scarring.
- Directional changes of Langer's lines have been known to occur within the course of a person's lifetime.
- Sometimes the exact direction of these lines are unknown, because in some regions of the body there are differences between different individuals.

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1694. Most common type of cutaneous mastocytosis is?

a) Solitary mastocytoma

b) Urticaria pigmentosa

c) Telangiectasia macularis eruptiva perstans

d) Diffuse erythrodermic

Correct Answer - B

Ans. B. Urticaria pigmentosa

[Ref IADVL text book of dermatology 3rde p. 146

Urticaria pigmentosa:

- (Generalized eruption of cutaneous mastocytosis (childhood type).
- It is the most common form of cutaneous mastocytosis.
- Urticaria pigmentosa is most common in children.
- It can also occur in adults.
- It is a familial cutaneous disorder characterised by generalised distribution of red brown macules.
- Each lesion represents a collection of mast cells in the dermis with hyperpigmentation of overlying epidermis.
- The most characteristic features is that these lesions urticate on scratching.

1695. Volcano sign is seen in?

a) Leprosy

b) Leishmaniasis

c) Lupus vulgaris

d) DLE

Correct Answer - B

Ans. B. Leishmaniasis

[Ref Indian Dermatol Online J. 2012 Sep-Dec; 3(3): 159-165.doi: 10.4103/2229-5178.101810]

Volcano sign:

- Descriptive term for the morphologic feature of Old World cutaneous leishmaniasis.
- The lesion starts as a small nontender papule, which enlarges in size and ulcerates in the centre.
- The border of the crusted ulcer often has an erythematous rim and is called as "Volcano sign".

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1696. Treatment of choice for oral candidiasis is?

a) Terbinafin

b) Nystatin

c) Griesofulvin

d) Selenium sulphide

Correct Answer - B
Ans. B. Nystatin
[Ref IADVL 3rdle p 283]
Treatment of cutaneous candidiasis
Topical (TOC for uncomplicated cases): - nystatin suspension, clotrimazole troches, gention violet, chlorhexidine, ketoocnazole, amphotericin gel.
Systemic (reinfection, unresponsive & chronic cases): - oral fluconazole, itraconazole or ketoconazole are needed.

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1697. Most common metal responsible for contact dermatitis is ?

a) Gold

b) Silver

c) Nickel

d) Mercury

Correct Answer - C

Ans. C. Nickel

[Ref Andrew's diseases of skin E-book p 99 & IADVL 3rd/e p. 559]

Contact dermatitis is mainly of two types :

A. Irritant contact dermatitis

- Due to direct irritant action of the material e.g. Solvents, Alkalis, Detergents. Most common sites are hands & forearms.

B. Allergic contact dermatitis

- It is due to delayed hypersensitivity (type IV hypersensitivity) to a particular antigen in a sensitized individual.

The most common allergens causing allergic contact dermatitis are pollen and metals:

1. Parthenium (Congress grass)
2. Nickel

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1698. Which of the following is true about xeroderma pigmentosa?

a) Autosomal dominant

b) Good long term prognosis

c) Purine dimmers

d) DNA repair defect

Correct Answer - D
Ans. D. DNA repair defect
[Ref Rook's 4thie p. 78.12]
Xeroderma pigmentosa
Molecular defect:

- Exposure to UV rays damages DNA due to production of convalent linkages between adjacent pyrimidines (pyrimidine dimmers).
- Normally the damaged DNA is repaired by excision and repair.
- In xeroderma pigmentosa the repair of UV damaged DNA is defective.
- It is an autosomal recessive disorder.

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1699. True about erythema toxicum is?

a) Common in pre-term baby

b) Lesions contain many lymphocytes

c) Can be life threatening condition

d) Occurs mainly in neonatal period

Correct Answer - D
Ans. D. Occurs mainly in neonatal period
[Ref IADVL .3rd le p. 163]
* Erythema toxicum neonatorum (ETN/baby acne/toxic erythema of the newborn)
- It is a benign, asymptomatic skin condition that is characterized by small, erythematous papules, vesicles, and, occasionally, pustules.
- The lesions are usually surrounded by a distinctive diffuse, blotchy, erythematous halo
- It is more common in babies born at full term (between 37 and 40 weeks of gestation) compared with premature babies.
- Only occurs during the neonatal period, usually between day 2-5 after birth and typically resolves within first two weeks of life.
- The fluid from erythema toxicum lesions will show many eosinophils

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1700. Nevus simplex commonly presents at ?

a) Face

b) Trunk

c) Legs

d) Hand

Correct Answer - A

Ans. A. Face

[Ref IADVL 3rdie p. 201]

- Nevus simplex (Nevus flammeus nuchae/stork bite/ Salmon patch)
- It is a congenital capillary malformation presents in 30 percent of newborn babies.
- A stork bite is due to dilation of blood vessels and may become darker when the child cries or strains.
- They are most common on the forehead, eyelids, upper lip, between the eyebrows, and the back of the neck, these marks fade as the infant grows.

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1701. In mechanical ventilation, peak pressure in inspiration denotes ?

a) Compliance of lung

b) Capacity of inspiratory muscles

c) Airway resistance

d) All of the above

Correct Answer - C
Ans. C. Airway resistance
[Ref: Essentials of anaesthesia-786]
Pressures in mechanical ventilation
Peak pressure

- Peak pressure applies when there is airflow in the circuit, i.e., during inspiration.
- Peak pressure determines airway resistance.

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1702. Propofol vial, once opened, should be used within?

a) 2 hours

b) 4 hours

c) 6 hours

d) 8 hours

Correct Answer - C

ANs. C. 6 hours

[Ref: Lee 13th/e p. 158-160; Morgan 4thle p. 200-202]

- Propofol is oil based preparation containing soybean oil, egg lecithin, and glycerol. The color of solution is milky white.
- Solution should be used within 6 hours after opening the vial because there have been death reports following the use of contaminated solution as egg lecithin is a good medium for bacterial growth.
- To prevent this problem recently available propofol preparations have disodium edetate or sodium metabisulfite as antimicrobial agent.

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1703. Relative contraindication of neuraxial/regional anesthesia is?

a) Hypertension

b) Renal disease

c) Sepsis

d) Diabetes

Correct Answer - C

Ans. C. Sepsis

[Ref Morgan 4th/e p. 299]

Contraindications to neuraxial block (spinal & epidural)

- Absolute :- Infection at the site of injection, patient refusal, coagulopathy or other bleeding disorder, severe hypovolemia, increased ICT, severe aortic or mitral stenosis.
- Relative :- Sepsis, unto-operative patient, pre-existing neurological deficit, demyelinating lesions, severe spinal deformity, stenotic valvular heart disease.

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1704. CNS affection of a local anesthetic agent leads to?

a) Convulsion

b) Perioral numbness

c) Depression

d) All of the above

Correct Answer - D

Ans. D. All of the above

[Ref Morgan 4thle p. 270]

Manifestations of local anesthetic toxicity

- Early symptoms (Prodrome) Circumoral numbness, dizziness, tongue paresthesia, restlessness, tinnitus, agitation.
- CNS symptoms :- These are biphasic i.e. excitation (convulsions, restlessness, agitation & tinnitus), followed by depression (drowsiness, disorientation, respiratory depression, unconciousness).
- Cardiovascular manifestations :- hypotension, cardiac arrest, coma

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1705. American anesthetic association says that clopidogrel should be withheld how many days before surgery?

a) 1 day

b) 1 week

c) 3 weeks

d) 4 weeks

Correct Answer - B

Ans. B. 1 week

[Ref Ajay Yadav 3'/e p. 46]

Preoperative modifications of pre-existing drugs

Drugs which can be stopped	**Drugs which can be continued till the day of surgery**
Conventional dose aspirin & clopidogrel (antiplatelets)-I week before surgery	Antianginal (except aspirin)
Oral anticoagulants - 4 days before & switch to heparin, which is stopped 12 hours prior to surgery	Antiepileptics
Oral hypoglycemic (metformin) - 48 hours before urgery and switch to insulin	Antihypertensives (except AT-II antagoists) Levodopa
AT-II antagonists (losartan, valsarton) - 1 day prior	Digitalis
Lithium - 48-72 hours before surgery	TCAs
	Low dose aspirin

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MAO inhibitors - 3 weeks
before surgery

- Note: Antiplatelet drugs like clopidogrel and conventional dose of aspirin should be stopped 7 days prior to surgery.
- But low dose aspirin can be continued till the day of surgery.

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1706. Which of the following inhalational anesthetic agent most easily crosses blood brain barrier?

a) Methoxyflurane

b) Sevoflurane

c) Desflurane

d) Nitrous oxide

Correct Answer - A

Ans. A. Methoxyflurane

[Ref Ajay Yadav 4th/e p. 63]

- Oil : gas partition coefficient measures the lipid solubility of the agent and therefore solubility in the fat-rich tissues of the CNS (ability to cross BBB).
- Methoxyflurane has maximum oil : Gas partition coefficient —> Most lipid soluble & most easily crosses BBB.
- 1120 has minimum oil : Gas partition coefficient -p Least lipid soluble & therefore likely to cross BBB.

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1707. Which of the following anesthetic agent most is lipid soluble?

a) Nitrous oxide

b) Methoxyflurane

c) Isoflurane

d) Halothane

Correct Answer - B

Ans.B. Methoxyflurane

- Oil : gas partition coefficient measures the lipid solubility of the agent and therefore solubility in the fat-rich tissues of the CNS (ability to cross BBB).
- Methoxyflurane has maximum oil : Gas partition coefficient —> Most lipid soluble & most easily crosses BBB.
- 1120 has minimum oil : Gas partition coefficient -p Least lipid soluble & therefore likely to cross BBB.

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1708. Etomidate is not used for long term infusion because?

a) Results in adrenal suppression

b) May cause vasospasm

c) Results in cardiac arrhythmias

d) May cause increase in ICT

Correct Answer - A

Ans. A. Results in adrenal suppression

[Ref Morgan 4th/e p. 200]

- Etomidate suppresses corticosteroid synthesis in the adrenal cortex by reversibly inhibiting 1113-hydroxylase, which coverts 11-deoxycortisol to cortisol and by a relative minor effect on 17a - hydroxylase.
- Using a continuous etomidate infusion for sedation of critically ill trauma patients in intensive care units has been associated with increased mortality due to adrenal suppression.
- The mortality of patients exposed to a continuous infusion of etomidate for more than 5 days increased from 25% to 44%, mainly due to infectious causes such as pneumonia.

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1709. Among the following agents, maximum boiling point is associated with?

a) Sevoflurane

b) Isofurane

c) Methoxyflurane

d) Desflurane

Correct Answer - C
Ans. C. Methoxyflurane
[Ref Ajay Yadav 4th/e p. 63]
Boiling point of methoxyflurane is more than water (104°C)

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1710. A patient with normal succinylcholine metabolism will have Dibucaine number between?

a) 20-30

b) 40-45

c) 50-60

d) 70-80

Correct Answer - D
Ans. D. 70-80
Dibucain number : Dibucain (a local anaesthetic) inhibits 80% of normal pseudocholinesterase and 20% of atypical (non-functional) pseudocholinesterase. Therefore normal dibucain number is 70-80%.

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1711. Benzocaine is used in which type of anesthesia?

a) Topical

b) Spinal

c) Epidural

d) All of the above

Correct Answer - A
Ans. A. Topical
[Ref Morgan 4th/e p. 270]
Benzocaine and cocaine are used only in topical anesthesia .

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1712. Succinylcholine is contraindicated in?

a) Hyperkalemia

b) Hypokalemia

c) Hypercalcemia

d) Hypocalcemia

Correct Answer - A
Ans. A. Hyperkalemia
[Ref Morgan Pie p. 214]
Sch can cause dangerous hyperkalemia in and is contraindicated in: Burn, massive trauma, crush injury, Severe intraabdominal infection (sepsis).

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1713. "Triangle of Petit" is a landmark for which block?

a) Spinal block

b) Bier's block

c) TAP block

d) Epidural block

Correct Answer - C
Ans. C. TAP block
[Ref Miller's anesthesia E-book p. 1735]
* Transverse abdominis plane (TAP) block
- It is a peripheral nerve block designed to anesthetize the nerves supplying the anterior abdominal wall (T6 to L1).
- The point of entry for the blind TAP block is the lumbar triangle of Petit.
- This is situated between the lower costal margin and iliac crest.
- It is bound anteriorly by the external oblique muscle and posteriorly by the latissmis dorsi.

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1714. What is the intubation dose of pancuronium?

a) 0.1 mg/kg

b) 1 mg/kg

c) 10 mg/kg

d) 20 mg/kg

Correct Answer - A
Ans. A. 0.1 mg/kg

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1715. Which of the following agent is associated with maximum histamine release?

a) d-Tubocurarine

b) Cisatracurium

c) Pancronium

d) Rocuronium

Correct Answer - A

Ans. A. d-Tubocurarine

Histamine release is caused by → D-TC (maximum tendency), succinylcholine, mivacurium, doxacurium, atracurium, tubocurarine can cause bronchoconstriction.

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1716. Hypotension following spinal anesthesia can be best prevented by?

a) Preloading with colloids

b) Using small size needle

c) Preloading with crystalloids

d) All of the above

Correct Answer - A

Ans. A. Preloading with colloids

[Ref Lee 13th/e p. 509, 510; Morgan 4th/e p. 297]

Hypotension is the most common complication of spinal anesthesia. It arises due to blocking of sympathetic root fibers and is usually accompanied by bradycardia (Preganglionic block of the sympathetic nerves to heart T1-T4) and nausea.

Hypotension can be prevented by preloading the patient with colloids, Preloading with crystalloid does not prevent hypotension because large volumes of crystalloids quickly redistribute from intravascular to extravascular space.

Beach chair position also prevents hypotension.

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1717. Intra-arterial thiopentone injection leads to?

a) Ischemia

b) Vasodilatation

c) Vomiting

d) Hypertension

Correct Answer - A

Ans. A. Ischemia

[Ref Ajay Yadav 4th/e p. 80; Lee 13thie p. 155]

Ischemia

- Inadvertent intra-arterial injection of thiopentone is a very dreadful complication.
- It produces thrombosis, vasospasm, ischemia, necrosis and finally gangrene.
- The first symptom is burning pain. The first sign is blanching of the hand due to vasospasm.

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1718. Size of LMA for a 15kg child is?

a) 1

b) 2

c) 3

d) 4

Correct Answer - B

Ans. B. 2

LMA according to patient's weight and age:

- 10-20kgs, infants & children

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1719. Anesthetic agent leading to bradycardia is?

a) Pancuronium

b) Vecuronium

c) Atracurium

d) Propofol

Correct Answer - D
Ans. D. Propofol
Bradycardia causing anesthetic agents:

- Succinylcholine
- Propofol
- Opioids anesthetics (fentanyl and its congers)

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1720. Type E circuit is used for?

a) Spontaneous ventilation

b) Controlled ventilation

c) Children

d) An used for all of the above indications

Correct Answer - C
Ans. C. Children
[Ref Ajay Yadav 4th/e p. 29, 30]
Circuit of choice for spontaneous ventilation in adult -4 Mapleson A
Circuit of choice for controlled ventilation in adult Mapleson D (Bain circuit)
Circuit of choice for children - Type F, i.e. Jackson-Rees (first choice) and type E, i.e. Ayre's T piece (second choice)

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1721. Propofol shows following effect on EEG?

a) Activation

b) Depression

c) Depression in low doses and activation in high doses

d) None of the above

Correct Answer - B

Ans. B. Depression

EEG changes during anesthesia:

EEG Depression caused by,

- Inhalational agents (1-2 MAC)
- Barbiturates
- Opioids
- Etomidate
- Propofol
- Hypocapnia
- Marked hypercapnia
- Hypothermia
- Late hypoxia, ischemia

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1722. Pin index system is a safety feature adopted in anesthesia machines to prevent?

a) Incorrect attachment of anesthesia machines

b) Incorrect attachment of anesthesia face masks

c) Incorrect inhalation agent delivery

d) Incorrect gas cylinder attachment

Correct Answer - D
Ans. D. Incorrect gas cylinder attachment
[Ref Lee 13th/e p. 85]
Pin index system: - This is the safety mechanism so that one cylinder cannot be fitted at the other's position.

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1723. Anesthetic agent of choice in asthma patient is?

a) Thiopentone

b) Methexitone

c) Ketamine

d) Propofol

Correct Answer - C
Ans. C. Ketamine
[Ref Miller's 7"le p. 744-746]
Ketamine is a potent bronchodilator; therefore it is the anesthetic agent of choice in bronchial asthma patients.
Halothane is the inhalational agent of choice in asthmatics.

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1724. Mallampatti's classification is for?

a) Mobility of cervical spine

b) Mobility of atlanto axial joint

c) Assessment of free rotation of neck before intubation

d) Inspection of oral cavity before intubation

Correct Answer - D

Ans. D. Inspection of oral cavity before intubation

[Ref Morgan 4thie p. 113]

Mallampati score (Mallampati oropharyngeal scale):

- Mallampati grading is used to evaluate the visibility of tonsil and tonsillar fossa which in turn assess the adequate mouth opening depending upon the grade.
- Indications of Mallampati score are Oral cavity assessment to rule out difficult intubation (Inspection of oral cavity before intubation) & Sleep apnea evaluation.

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1725. Thickness of lead apron to prevent radiation:

a) 1 mm

b) 3 mm

c) 0.5 mm

d) 7 mm

Correct Answer - C
Ans. C. 0.5 mm
"It is recommended that for general purpose radiography the minimal thickness of lead equivalent in the protective apparel should be 0.5mm."
- Textbook of Radiology Physics p. 39
Lead apron of 0.5mm thickness reduce intensity of scattered X-rays by over 90%.

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1726. Radiation protection shields are made up of:

a) Copper

b) Silver

c) Lead

d) Tin

Correct Answer - C
Ans. Lead

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1727. Soap bubble appearance on MRI brain is characteristic of?

a) Tubercular meningitis

b) Neurocysticercosis

c) Cryptococcal cysts

d) Ependymoma

Correct Answer - C
Answer- C. Cryptococcal cysts
Cryptococcomas
T1: low signal
T2 / FLAIR: high signal
T1 C+ (Gd): variable, ranging from no enhancement to peripheral nodular enhancement.
Gelatinous pseudocysts caused by Cryptococcus tend to give a "soap bubble" appearance on MRI. MRI findings in neural cryptococcosis.

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1728. T2 image in MRI is -

a) Good to detect pathology

b) Good to detect anatomy

c) Good for both

d) Good for none

Correct Answer - A

Answer- A. Good to detect pathology

Many pulse-sequence techniques are used in MRI, but most classic are T1 and T2 weighted images. As a general rule, TI-weighted images are good for viewing anatomy, and T2 weighted images are good for detecting pathology.

[Ref Fundamentals of diagnostic radiology p. 18]

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1729. CSF on MRI appears:

a) Hyperintense on T_1 weighed image and hypointense on T_2 weighed image

b) Hypointense on T_1 weighed image and hyperintense on T_2 weighed image

c) Hyperintense on T_1 and T_2 weighed images

d) Hypointense on T_1 and T_2 weighed images

Correct Answer - B
Ans. Hypointense on T_1 weighed image and hyperintense on T_2 weighed image
Fluid- Edema, Urine, Bile, CSF- T1 weighted signal low & T2 weighted signal high

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1730. Keyhole sign on ultrasound is seen in -

a) Polycystic kidney

b) Hydronephrosis

c) Chronic pyelonephritis

d) Posterior urethral valves

Correct Answer - D

Answer- D. Posterior urethral valves

The keyhole sign is an ultrasonographic sign seen in boys with posterior urethral valves. lt refers to the appearance of the proximal urethra (which is dilated) and associated thick walled distended bladder which on ultrasound may resemble a key hole.

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1731. MIBG dose is -

a) 40-80MBq

b) 80-100MBq

c) 100-120MBq

d) 120-150MBq

Correct Answer - A
Answer- A. 40-80MBq
MIBG scan is a scintigraphic study that uses metaiodobenzylguanidine labeled to Iodine- 123 or Iodine- 131.
The activity administered to adults should be: for 131I-mIBG: 40-80 MBq (1.2 - 2.2 mCi); for 123ImIBG: 400 MBq (10.8 mCi).
For minimum and maximum recommended activities in children one should consult the Guidelines for Radioiodinated MIBG Scintigraphy in Children (minimum activity 20 MBqfor 123I-mIBG and 35 MBqfor 131I-nIBG; maximum activity 400 MBqfor 123I-mIBG and 80 MBqfor 131I-mIBG).

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1732. Barium meal follow through is helpful in diagnosing -

a) Colonic stricture

b) Ileal stricture

c) Rectal stricture

d) Esophageal stricture

Correct Answer - B

Answer- B. Ileal stricture

Following abnormalities of small intestine can be identified:-

1. Malabsorption
2. BD (CD & UC)
3. Tumors of small intestine
4. Small bowel obstruction
5. Intestinal strtcture

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1733. The maximum permissible level of occupational exposure to radiation is...per year -

a) 5 rad

b) 2 rad.

c) 10 rad

d) 50 rad

Correct Answer - A
Ans. is 'a' i.e., 5 Rad
The amount of radiation received from outer space and background radiation has been estimated to be 0.1 rad a year. Apparently, this does not at present constitute a hazard. The additional permissible dose from man made sources should not exceed 5 rad a year.

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1734. Banana and lemon sign seen in which fetal nomalies :

a) Neural tube defect

b) Hydrops fetalis

c) Twins

d) IUD

Correct Answer - A
Ans. is a i.e. Neural tube defect
Signs of Spina bifida on Ultrasound

- Small biparietal diameter.
- Ventriculomegaly.
- Frontal bone scalloping or the so called *lemon sign.*
- Elongation and downward displacement of the cerebellum-the so called *banana sign.*
- Effacement or obliteration of the cisterna megna.

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1735. Radiographic sign characteristic of pulmonary edema is -

a) Westermark's sign

b) Hampton's hump

c) Palla sign

d) Bat wing sign

Correct Answer - D
Answer- D. Bat wing sign
Acute pulmonary edema : - Acute pulmonary edema is characterized by centrally located alveolar sign, with hazy or fluffy increased density in perihilar distribution, creating a bat-wing or angel-wing paftern. There is relative sparing of the more peripheral zones of lung fields. Air bronchogram become evident as edema becomes more opaque.

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1736. Gamma knife utilizes -

a) Strontium 89

b) 1-131

c) Cobalt -60

d) P-32

Correct Answer - C
Answer- C. Cobalt -60
Gamma knife contains Cobalt-60 sources of approximately 30 curis placed in circular array in a heavily shielded unit. The unit directs the gamma rirys to the target.

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1737. Snow storm appearance on chest X-ray is seen in -

a) Anthracosis

b) Byssinosis

c) Silicosis

d) Bagassosis

Correct Answer - C
Answer- C. Silicosis
Simple form z- Multiple small rounded (nodular) opacities in the lung parenchyna (snow stonn appeoraace).
These nodules tend to be located predominantly in the middle and upper lung fields with relative sparing of lower lung fields (Though lower lung fields can also be involved later in disease process).
There is bilateral hilar lymphadenopathy with characteristic egg shell calcification.

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1738. "Droop lily sign" is seen in -

a) "Droop lily sign" is seen in

b) Duplicated collecting system

c) Chronic pyelonephritis

d) Hypernephroma

Correct Answer - B

Answer- B. Duplicated collecting system

The drooping lily srgl (dropping flower sign) is a urographic sign in some patients with a duplicated collecting system. It refers to the inferolateral displacement of the opacified lower pole moiety due to an obstructed (and unopacified) upper pole moeity.

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1739. Sonographic appearance of hydatid cyst is -

a) Hyperechoic aseptate lesion

b) Hypoechoic aseptate lesion

c) Hyperechoic septate lesion

d) Hypoechoic septate lesion

Correct Answer - D

Answer- D. Hypoechoic septate lesion

Type I (Simple cyst):- Single (solitary) hnrcechoic/anechoic aseptate (without septa) lesion. The diagnosis of hydatid cyst may be considered when focal thickening of wall is present or when hlperechoic spots, due to hydatid sand, appear in the dependent areas.

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1740. Roentgen is the unit of:

March 2010

a) Radioactivity

b) Radiation exposure

c) Absorbed dose

d) None of the above

Correct Answer - B

Ans. B: Radiation Exposure

The curie, named after scientist Marie Curie, is a unit of measurement used to measure how radioactive an object is, or how much radiation it produces.

This is done by examining how fast its atoms disintegrate and measuring their disintegration per second.

Roentgen, on the other hand, **is a radiation unit that indicates how much radiation is present in the air of a specific environment.**

This is used to show how much radiation may be absorbed by standing in a particular place for a certain amount of time. One roentgen of gamma- or X-ray exposure produces approximately 1 rad (0.01 gray) tissue dose.

More common than these two are the rad and the rem.

These two units can measure any type of ionizing radiation, including alpha, beta, neutron, gamma and "X," and deal with how much radiation is absorbed by objects.

Rad stands for "radiation absorbed dose."

One rad equals 100 ergs (an energy unit) absorbed by 1 g of material.

Rads are used to show how much radiation any object,

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especially things like metal and stone, has absorbed. Rem (dose equivalent)is a strictly biological measurement, and stands for "roentgen equivalent man," meaning that it is the same essential measurement as a roentgen, only applied to the human body, although this works only with gamma and "X" types of radiation.
Rem is used to define limits of exposure for people who work in nuclear power plants.
Rem is often divided in millirems and assigned a length of time, such as millirems per hour.
Curie/ becquerel is the unit of radioactivity.

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1741. SI unit of radioactivity is:

March 2013 (c, f)

a) Rem

b) Rad

c) Becuerel

d) Curie

e) None

Correct Answer - C

Ans. C i.e. Becquerel

Old unit of radioactivity is Curie and new unit (SI) is Becquerel.

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1742. SI unit of absorbed dose is -

a) Becquerel

b) Columb/cm

c) Gray

d) Sievert [Sv]

Correct Answer - C
Answer- C. Gray
Old unit of absorbed dose is Rad and new unit (SI) is Gray.

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1743. Stenver's view is used for -

a) Superior orbital foramen

b) Inferior orbital foramen

c) Internal auditory canal

d) Sella turcica

Correct Answer - C
Answer- C. Internal auditory canal
Skull trauma (sella turcica) (pituitary fossa)- Lateral view
Internal auditory view (both side)- Stenver's view

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1744. Acute myocarditis schintigraphy is done with -

a) Thallium

b) Technetium

c) Gallium

d) None

Correct Answer - C
Answer- C. Gallium
Gallium-67 uptake is increased in inflamed myocardium. Gallium-67 citrate injected intravenously binds to transferrin, and it is incorporated into the transferrin receptor of inflammatory cells or malignant tumor cells.
Gallium-67 scintigraphy is useful for examination of heart disease including cardiac sarcoidosis and acute myocarditis

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1745. Radiation used most commonly for pain management due to bone metastasis is -

a) Co60

b) Iridium 192

c) Tritium

d) Tin-117

Correct Answer - A
Answer- A. Co60
Radiopharmaceuticals (radioactive isotopes) used for metastatic bone pain are strontium (Sr89), Samarium (Sm153), rhenium (Re186), Phosphorus-32 and Tin-117 (Sn-177).

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1746. Minimum radiation dose which may lead to oligospermia is -

a) <1 Gy

b) 2-3 Gy

c) 7-10 Gy

d) 15 Gy

Correct Answer - A

Answer- A. <1 Gy

Fractionated doses 0.7-0.9 Gy lead to oligospermia/azoospermia but with frequent recovery at 1-1.5 years. Permanent azoospermia may occur after fractionated doses as low as 1.2 Gy, and is likely >2 Gy.

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1747. Half life of Technetium 99 is:

a) 2 hours

b) 6 hours

c) 12 hours

d) 24 hours

Correct Answer - B
Ans. 6 hours
Tc-99 - Technitium - 6 hours
Half life (t_in) of radium (Ra^{226})is *1602-1626 years (longest)Q; Cesium (^{137}Cs) is 30 yearsQ;* Cobalt (^{60}Co) is *5.2 yearsQ;* iridium (^{192}1r)is *74.5 daysQ;* Iodine (P^{31})is *8 daysQ;* ^{1123} is *13 hoursQ; technitium (Tc^{99}) is 6 hoursQ;* and 1^{132} is *2.3 hoursQ.*

1748. Half life of tritium is -

a) 10.2 years

b) 12.3 years

c) 15.5 years

d) 20.7 years

Correct Answer - B
Answer- B. 12.3 years
Tritium (hydrogen-3) is a radioactive isotope of hydrogen. The nucleus of tritium (sometimes called a triton) contains one proton and two neutrons.
Whereas the nucleus of protium contains one proton and no neutrons.
Tritium has a half-life of 12.3 years

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1749. Stereotactic radiosurgery is done for -

a) Glioblastoma multiforme

b) Medulloblastoma spinal cord

c) Ependymoma

d) AV malformation of brain

Correct Answer - D
Ans. is 'D' i.e., AV malformation of brain
It is also used for-
1. Solitary cerebral metastasis
2. Arteriovenous malformation
3. Small meningiomas
4. Schwannomas
5. Pituitary adenomas

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1750. A Bone marrow transplant recipient patientdeveloped chest infection. On HRCT 'Tree in bud appearance' is seen. Most likely causative agent is:

a) Klebsiella

b) Pneumocystis

c) TB

d) RSV

Correct Answer - B

Pneumocystis *[Ref: Harrison I7/e p843; Article 'Tree in bud sign' in Journal 'Radiology' and 'Radiographics7*

- Tree-in-bud is a sign seen in HRCT, most commonly seen with *endobronchial spread of Tuberculosis,* but can be seen with a wide variety of conditions, most commonly infections. (Described ahead in detail).
- Theoretically all the options can cause 'Tree-in-bud' sign (although Klebsiella has not been mentioned in the list).
- So the next clue is Bone marrow transplant.

Bone marrow transplant causes a transient state of immunological deficiency leading to a wide variety of opportunistic infections. Among the given options, according to the table and text of Harrison (17/e chapter 'Infections in Transplant Recipients') Pneumocystis and RSV can cause pneumonia after transplant: butPneumocystis is a much more common than RSV.

Common Sources of Infections after Hematopoietic Stein Cell Transplantation

Period after Transplantation

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Infection Site	*Early (<1 Month)*	*Middle (1-4 months)*	*Late (>6 Months)*
Disseminated	*Aerobic gram-negative, grain-positive bacteria*	*Nocardia Candida, Aspergillus*	*Encapsulated bacteria (Streptococcus pneumoniae, Haemophilus influenzae, Neisseria meningitidis)*
Skin and mucous membranes	*HSV-*	*HHV-6*	*VZV*
Lungs	*Candida, Aspergillus HSV*	*CMV, seasonal respiratory viruses Pneumocystis Toxoplasma*	*Pneumocystis*
Gastrointestinal tract		*CMV*	
Kidney		*BK virus, adenovirus*	*BK virus*
Brain	*HHV-6*	*Toxoplasma*	*Toxoplasma JC virus*
Bone marrow	*HHV-6*		

Tree-in-bud sign

- The tree-in-bud sign is a finding seen on thin-section computed tomographic images of the lung (HRCT). *(Not seen on X-rays) Peripheral, small, centrilobular nodules are connected to linear, branching opacities that have more than one contiguous branching site, thus resembling a budding or, fruiting tree: this is known as tree-in-bud-pattern.*
- *It represents dilated and impacted (mucus or pus-filled) centrilobular bronchioles.* The presence of tree-in-bud is indicative of *small airway disease.*

- It is most commonly associated with endobronchial spread of Mycobacterium tuberculosis. But it can also be seen in a large number of conditions.
- Pulmonary infectious disorders involving the small airways are the most common causes of the tree-in-bud sign. Any infectious organism, including bacterial, mycobacterial, viral, parasitic, and fungal agents, can involve the small airways and cause a tree-in-bud pattern.

Causes of *Tree-in-bud* appearance

	Congenital disorders	
Peripheral airway disease	Cystic fibrosis	Connective tissue disorders
Infection	Kartagener syndrome	Rheumatoid arthritis
Bacterial	Idiopathic disorders	Sjo¨gren syndrome
Mycobacterium tuberculosis	Obliterative bronchiolitis	Peripheral pulmonary vascular disease
M avium-intracellulare complex	Diffuse panbronchiolitis	Neoplasms
Staphylococcus aureus	A spiration	Primary pulmonary lymphoma
Haemophilus influenzae	Inhalation	Neoplastic pulmonary emboli
Fungal	Toxic fumes and gases	Gastric cancer
Aspergillus	Immunologic disorders	Breast cancer
Pneumocystis carinii, (renamed *Pneumocystis jiroveci)* Viral	Allergic bronchopulmonary aspergillosis	Ewing sarcoma
Cytomegalovirus		Renal cancer
Respiratory syncytial virus		

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1751. Safe light in radiographic dark room is ideally should be of following color -

a) Red

b) Yellow

c) Purple

d) Blue

Correct Answer - A
Answer- A. Red
Red- Some blue sensitive materials, most phototypesetting materials, most blue and most green sensitive medical x-ray films (used in darkroom).
Dark amber- Color negative papers and materials, panchromatic black and white papers.
Amber- Color negative papers, panchromatic black and white papers

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1752. Chain of lakes appearance is seen in?

a) Chronic pancreatitis

b) Acute pancreatitis

c) Gall stone ileus

d) Sub-acute intestinal obstruction

Correct Answer - A

Chronic pancreatitis REF: Sutton's Radiology 7th edition volume 1 page 798, Sabiston textbook of surgery 18th ed chapter 5

Chronic pancreatitis is characterized by irregularities of the pancreatic ducts, ductal strictures, and areas of duct dilation. The major as well as the side-branch ducts may be involved. For unexplained reasons, some patients with chronic pancreatitis develop dilated main pancreatic ducts (large duct disease), whereas others retain ducts of normal or even smaller than normal caliber (small duct disease). Some patients with chronic pancreatitis can be shown to have major ducts that have the appearance of a "chain of lakes" or a "string of pearls" that is the result of segments of dilated duct separated by areas of ductal stricture

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1753. Commonly used type of radiation in radiotherapy is:

a) Alpha rays

b) Beta rays

c) Gamma rays

d) X-rays

Correct Answer - C
Ans. Gamma rays

- Radioiodine generates both beta and gamma rays but predominantly beta rays.

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1754. The photosensitive material used in X-rays films consist of:

a) Cellulose

b) Silver bromide

c) Zinc sulphide

d) Cadmium tungstate

Correct Answer - B
Ans. Silver bromide

- After the image has been developed, the resultant image is then fixed by a *fixer (Hypo-sodium thiosulphate)* which removes unused silver halide, which would make the film appear milky or cloudy. X-ray film should be developed in dark room, otherwise light will spoil the film (x-ray film has photosensitive silver bromide). Blue and green light are most sensitive whereas yellow and red light are least.

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1755. Least penetrating power among following mentioned rays is in -

a) Alpha rays

b) Beta rays

c) Gamma rays

d) X-ray

Correct Answer - A
Answer- A. Alpha rays
Penetration power : Gamma rays> X rays > Beta particle > Alpha particle (or helium ion)
Ionizing & damaging power : Alpha particle (or helium ion) > Beta particle > X ray> Gamma ray
Alpha particles (Helium nuclei) have highest ionizing power because they have a large charge.
Alpha particles have the highest damaging power as they are relatively slow and heavy.

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1756. Non - ionizing radiation among the following is -

a) MRI

b) CT Scan

c) X-ray

d) Position emission scintigraphy

Correct Answer - A
Answer- A. MRI
Non- ionizing radiation-

- USG
- MRI
- Thermography (infrared rays)
- UV rays
- Radiofrequency waves
- Microwaves

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1757. Confabulation is?

a) A state of confusion where patient is not able to describe the details

b) Purposefully fabricating stories to project a certain image

c) Filling up to gaps by fabrication to cover lapses in memory

d) A feeling of strangeness to familiar situations or events.

Correct Answer - C

Ans. C. Filling up to gaps by fabrication to cover lapses in memory

[Ref Kaplan & Sadock's 10th/e p. 275]

Confabulation

- It is a type of Paramnesia (Distorted or falsified recall of events in relation to details or their temporal relationships)
- Unintentional filling of gaps of memory with material which are untrue and fanciful.

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1758. Alcohol withdrawal is not associated with?

a) Seizure

b) Amnesia

c) Tremers

d) Delirium

Correct Answer - B
Ans. B. Amnesia
[Ref: Niraj Ahuja 6th/e p. 41]

- Amnesia occurs during acute intoxication (not during withdrawal).

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1759. A 40 year old married male thinks that he is multitalented and is always overconfident. He never listens to his family or friends. Infact whenever anyone gives him any advice, he thinks that they have some motive against him. He is always suspicious of his wife.
All these are feature of?

a) Borderline personality disorder

b) Schizoid personality disorder

c) Paranoid personality disorder

d) Histrionic personality disorder

Correct Answer - C
Ans. C. Paranoid personality disorder
[Ref Namboodiri 3rdle p. 303; Niraj Ahuja ele p. 123]
Paranoid personality disorder:

- It is characterized by generalized mistrust and suspiciousness about the motives and actions of others and a tendency to interpret them as malevolent. The patient believes that:

1. Others are exploiting or deceiving the person.
2. Friends are untrustworthy and not loyal.
3. The spouse/partner is unfaithful.
4. There is hidden meaning in neutral or friendly remarks.
5. Many patients have feeling of self-importance and think they are

unusually talented.

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1760. Characteristic of histrionic personality disorder is?

a) Violation of rules of society

b) Attention - seeking behavior

c) Unstable interpersonal relationship

d) Grandiose behavior

Correct Answer - B

Ans. B. Attention - seeking behavior

[Ref Niraj Ahuja 6'''/e p. 122]

- Patients with histrionic personality disorder display excessive emotionality and attention-seeking behavior. Other options
- Violation of rules of society → antisocial personality disorder
- Unstable interpersonal relationship → borderline personality disorder
- Grandiose behavior → narcissistic personality disorder

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1761. Personality type seen in schizophrenia is?

a) Schizoid

b) Paranoid

c) Borderline

d) All of the above

Correct Answer - D

Ans. D. All of the above

[Ref Niraj Ahuja 6th/e p. 125 & Internet]

- Schizophrenia is associated with 3 types of personality disorders i.e. schizoid, borderline and paranoid.

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1762. Irresistible urge to drink alcohol is called?

a) Kleptomania

b) Pyromania

c) Dipsomania

d) Trichotillomania

Correct Answer - C
Ans. C. Dipsomania
[Ref Peculiarities of behavior]

- Dipsomania is characterized by periodic bouts of uncontrollable craving for alcohol.

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1763. A 39 years old male patient presents with waxy flexibility, negativism and rigidity. Most probable diagnosis is?

a) Excitatory catatonia

b) Stuporous catatonia

c) Paranoid schizophrenia

d) None

Correct Answer - B

Ans. B. Stuporous catatonia

[Ref Neeraj Ahuja &hie p. 62, 63]

Stuporous (retarded) catatonia :

- Characterized by extreme retardation of psychomotor function, which includes mutism, rigidity, negativism, posturing, echolalia, Echopraxia, Catalepsy (waxy flexibility), ambitendency, gegenhalten, streotypies, stupor, Mannerism, Grimicing, Automatic obedience, and verbigeration.

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1764. Most appropriate test for child psychologist to evaluate the intellectual ability of a 3 year old is?

a) Stanford Binet scale

b) Denver development scale

c) Alexander's pass along test

d) Rorschach inkblot test

Correct Answer - A

Ans. A. Stanford Binet scale

[Ref Psychological testing p. 101]

Stanford-Binet Intelligence Scale

- The Stanford-Binet Intelligence Scale is an individually administered standardized test that measures intelligence and cognitive abilities in children and adults, from age two through mature adulthood.
- The Stanford-Binet Intelligence Scale is now in its fifth edition (SB5) and was released in 2003. It is a cognitive ability and intelligence test that is used to diagnose developmental or intellectual deficiencies in young children.

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1765. Treatment of choice for akathesia is?

a) Phenytoin

b) Propranolol

c) Dantrolene

d) Lithium

Correct Answer - B
Ans. B. Propranolol
[Ref Kaplan & Saddock's 10th le p. 1020]
"The first line drug for akathisia is most commonly alpha-blocker".

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1766. Cardinal element of behavior therapy is?

a) Modeling

b) Learning

c) Conditioning

d) Guidance

Correct Answer - B
Ans.B. Learning
[Ref Niraj Ahuja 6'1* p. 220]

- Behavior therapy is based on the assumption that all behaviors (normal or abnormal) are learning response. Normal and abnormal behaviors are subject to the laws of learning and the same laws can be used to change them. Behavior therapy is based on theories of learning and aims at changing the maladaptive behavior and substituting it with adaptive behavior.

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1767. Tolerance is seen in?

a) Alcohol dependent syndrome

b) Schizophrenia

c) OCD

d) All of the above

Correct Answer - A

Ans. A. Alcohol dependent syndrome

[Ref Kaplan & Saddock's 10thle p. 382]

Alcohol dependent syndrome

- Alcohol dependent syndrome uses the same criteria for dependence for other substances, i.e., three or more of the following : -

1. Tolerance
2. Withdrawal symptoms
3. Alcohol is taken in larger amount or for longer period.
4. Persistent desire or sense of compulsion to take alcohol.
5. A great deal of time spent to obtain alcohol, to use alcohol or to recover from its effect.
6. Neglect of important social, occupational and recreational activities.

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1768. Treatment of choice for generalized anxiety disorder is?

a) Benzodiazepines

b) Neuroleptics

c) Beta blockers

d) Barbiturates

Correct Answer - A

Ans. A. Benzodiazepines

[Ref Harrison 17th/e p. 2712; Kaplan & Saddock's 10th/e p. 626]

Treatment of generalized anxiety disorder

- Benzodiazepines are the drug of choice. Drugs in this group are diazepam, Lorazepam, Alprazolam, Oxazepam, chlordiazepoxide.

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1769. Generalized anxiety disorder is diagnosed when anxiety and worry continues for at least?

a) 2 months

b) 4 months

c) 6 months

d) 8 months

Correct Answer - C

Ans. C. 6 months

[Ref Harrison 17"/e p. 2712; Kaplan & Saddock's 10th/e p. 626]

GENERALIZED ANXIETY DISORDER

- This is characterized by excessive anxiety and worry which are persistent & generalized and not restricted to any specific situation or object.
- Excessive anxiety worry occur for at least 6 months.

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1770. Risk factor for suicide is?

a) Increased serotonin

b) Drug abuse

c) Female sex

d) Married person

Correct Answer - B

Ans.B. Drug abuse

[Ref: Niraj Ahuja ele p. 236, 237; Essentials of psychiatry 4th/e p. 734]

Causes/Risk factors for suicide

- Psychiatric disorders: - Depression (most common), alcoholism (2nd mc), Drug/Substance dependence, Schizophrenia, Dementia.
- Physical illness: - Cancer, AIDS, Multiple sclerosis, Head trauma.
- Psychosocial factors: - Failure in love, marital difficulties, family dispute, illegitimate pregnancy.
- Biological factors: - Decrease in serotonin
- Other - Male sex, Age > 40 years, Single (Unmarried, divorced or widowed), previous suicide attempt, social isolation.

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1771. A 25 years old male c/o recurrent abdominal pain but biochemical assays and ultrasound abdomen is normal. He also complains of constant headaches. He suddenly complains of loss of vision of bilateral eyes. Ophthalmologist finds nothing on examination. Symptoms are most probably due to

a) Bilateral optic neuritis

b) Posterior inferior cerebellar artery infarct

c) Malingering

d) Factitious disorder

Correct Answer - D

Ans. D. Factitious disorder

Factitious disorder

- It is also known as Hospital addiction, hospital hoboes, or Professional patient.
- The term Munchausen syndrome is used for those patients who repeatedly simulate or fake diseases (intentionally) for the sole purpose of obtaining medical attention. There is no other recognizable motive (in contrast to malingering).
- The typical presentation of Munchausen syndrome is characterized by a restless journey from doctor to doctor and hospital to hospital, an ever-changing list of complaints and symptoms.
- The patient tries to maintain the sick role to obtain medical attention.

There may be evidence of earlier treatment usually surgical procedure, for example, multiple surgical scars (gridiron abdomen).

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1772. Most important receptors involved with schizophrenia are?

a) $GABA_A$

b) GABA,,

c) D_Zd

d) 5-HT

Correct Answer - C

Ans. C. D_Zd

[Ref Kaplan & Saddock's 10th le p. 470]

Dopamine hypothesis is the most accepted hypothesis for schizophrenia. There is hyperactivity of dopaminergic system. This hypothesis is supported by :

.. Amphetamine and cocaine which release dopamine in central synapses induce schizophrenia like symptoms; and

2. Antipsychotic drugs control the schizophrenic symptoms by blocking dopamine (D2) receptors.

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1773. Functional somatic disorder is?

a) Somatization disorder

b) Chronic fatigue syndrome

c) Hypochondriasis

d) Body dysmorphic disorder

Correct Answer - B

Ans. B. Chronic fatigue syndrome

Functional somatic syndromes:

- They are characterized more by symptoms, suffering and disability than by disease specific, demonstrable abnormalities of structure or function, i.e. There is reporting of somatic symptoms and resultant disability rather than on the evidence of underlying convention disease process
- Three most common functional somatic syndromes are fibromyalgia, Irritable bowel syndrome and chronic fatigue syndrome.

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1774. DHAT syndrome is?

a) Passage of blood in urine

b) Passage of semen in urine

c) Passage of pus in urine

d) None

Correct Answer - B

Ans. B. Passage of semen in urine

[Ref Encyclopedia of multicultural psychology p. 135]

Dhat syndrome is a culture-bound syndrome prevalent in Indian subcontinent in which male patients report that they suffer from premature ejaculation or impotence, and believe that they are passage of semen (dhat) in urine.

The condition has no known organic cause.

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1775. Suicide rate in India is?

a) 10.5 /100,000

b) 12.5/ 100,000

c) 14.5/ 100,000

d) 18/ 100,000

Correct Answer - A
Ans. A. 10.5 /100,000
[Ref Internet; Indian 1 Psychiatry. 2012 Oct-Dec; 54(4): 304-319.doi:10.4103/0019-5545.104793]
India ranks 43rd in descending order of rates of suicide with a rate of 10.6/100,000 reported in 2009 (WHO suicide rates).
In the most recent National Crime Records Bureau (NCRB; Ministry of Home Affairs) report the rate in 2010 rose to 11.4 per 100,000 population.
The male: female suicide ratio was 1.78 in India in 2008 and 2009.

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1776. Which of the following is not a culture bound syndrome?

a) Amok

b) Latah

c) Dhat

d) Von-Gogh

Correct Answer - D
Ans. D. Von-Gogh
[Ref Niraj Ahuja 6'/e p. 65]
Important culture-bound syndromes

- Ataque de nervios
- Dhat syndrome
- Khyal cap
- Ghost sickness
- Kufungisisa
- Maladi moun
- Nervios
- Shenjing shuairuo
- Taijin kyofusho
- Susto
- Amok
- Koro
- Latah
- Windigo

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1777. A 25 years old male is not happy with its gender and is always in distress due to this. He wants to change sex and have vagina. It comes under?

a) Transsexualism

b) Dual role transvestism

c) Gender dysphoria

d) Sexual maturation

Correct Answer - C

Ans. C. Gender dysphoria

[Ref Encyclopedia of relationships across the life span p.191]

* Gender dysphoria (formerly Gender Identity Disorder)
  - It is defined by strong, persistent feelings of identification with the opposite gender and discomforts with one's own assigned sex that results in significant distress or impairment.
  - In these cases, the assigned sex and gender do not match the person's gender identity, and the person is transgender.

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1778. Scatologia is?

a) Eating disorder

b) Sleep disorder

c) Paraphilia

d) Defense mechanism

Correct Answer - C
Ans. C. Paraphilia
[Ref: Niraj Ahuja 6th/e p. 133, 134]
Scatologia, also called Coprolalia, is a deviant sexual practice in which sexual pleasure is obtained through the compulsive use of obscene language.
The affected person commonly satisfies his desires through obscene telephone calls, usually to strangers.

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1779. Drug of choice for Tourette syndrome is?

a) Haloperidol

b) Amantidine

c) Propanolol

d) Diazepam

Correct Answer - A
Ans. A. Haloperidol
[Ref Kaplan & Saddock 10`Ve p. 557]
Medication for tic suppression (Tourrete syndrome)
Neuroleptics - Pimozide, along with haloperidol and fluphenazine are the medications with the most proven efficacy in controlling tics.

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1780. Loading dose of diazepam for alcohol withdrawal is?

a) 80mg

b) 50mg

c) 40mg

d) 20mg

Correct Answer - D

Ans. D. 20mg

Rigid:

- 10 mg four times daily

Flexible:

- 10 mg every 4-6 hours asneeded based on symptoms to a maximum of 60 mg/day

Front loading:

- 20 mg every 2-4 hours until sedation is achieved; then 10 mg every 4-6 hours as needed to a maximum of 60 mg/day

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1781. TCAs are contraindicated in all of the following except?

a) Narrow angle glaucoma

b) Prostate hypertrophy

c) A patient on MOA inhibitors

d) Impaired renal function

Correct Answer - D

Ans. D. Impaired renal function

[Ref Lippincott p. 81]

Common Contraindications of TCAs

1. Hypersensitivity to the medicines
2. Cardiac conduction abnormalities
3. Within 14 days of MAO inhibitors
4. Urinary retention
5. Narrow angle glaucoma
6. Prostate enlargement
7. Should be used cautiously in suicidal tendency, schizophrenia, seizure disorders, paranoia, impaired liver functions.
8. Safety in not established in pregnancy and lactation. Not recommended for children less 12years of age.

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1782. DOC for schizophrenic patient with poor oral absorption is?

a) Clozapine

b) Fluphenazine

c) Sulpride

d) Penfluridol

Correct Answer - B

Ans. B. Fluphenazine

[Ref: Ther Adv Psychopharmacol. 2014 Oct; 4(5): 198-219.doi: 10.1177/2045125314540297]

Long-acting injectable (LAI) antipsychotics (APs) (LAI APs) have proved effective in schizophrenia and other severe psychotic disorders because they assure stable blood levels, leading to a reduction of the risk of relapse.

LAIs bypass the initial deactivating process by avoiding first-pass metabolism in the liver.

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1783. Which of the following is not a side effect of quetiapine?

a) Dry mouth

b) Hair loss

c) Sudden cardiac death

d) Dyspepsia

Correct Answer - B

Ans. B. Hair loss

[Ref Goodman & Gilman li'Ve p. 463-466]

- Quetiapine is an atypical antipsychotic used for the treatment of schizophrenia, bipolar disorder, and major depressive disorder.

Very Common	Less common	Rare
Dry mouth	High blood pressure	Prolonged QT interval
Dizziness	Orthostatic hypotension	Sudden cardiac death
Headache	High blood cholesterol	Syncope
Somnolence	Elevated serum triglycerides	Diabetic ketoacidosis
Nausea	Abdominal pain	Restless legs syndrome
Vomiting	Constipation	Hyponatraemia, low blood sodium.
Increased appetite	Increased appetite	Jaundice
Sore throat	Increased liver enzymes	Pancreatitis
Trouble moving	Backache	Agranulocytosis

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Rapid heartbeat	Insomnia	Seizure
Weakness	Fatigue	Cardiomyopathy
	Pain	Suicidal ideation
	Dyspepsia (Indigestion)	Priapism
	Peripheral edema	Neuroleptic malignant syndrome
	Dysphagia	Tardive Dyskinesia.
	Weight gain	

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