MHT CET 2024 Question Paper (April 23 - Shift 1)

Biology Questions

Ques 1. What is the approximate size range of lymphocytes, a type of white blood cell?

A 5-10 micrometers
B 10-15 micrometers
C 15-20 micrometers
D 20-25 micrometers

Ans. B

Ques 2. Which of the following hormones plays a key role in kidney osmoregulation by promoting water reabsorption in the collecting ducts ?

A Insulin
B Glucagon
C Antidiuretic hormone (ADH)
D Aldosterone

Ans. C

Ques 3. Which of the following structures in the kidney is primarily responsible for the reabsorption of water and solutes from the filtrate ?

A Glomerulus
B Bowman's capsule

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C Proximal convoluted tubule
D Distal convoluted tubule

Ans. C

Ques 5. In a monohybrid cross between two heterozygous parents (Aa x Aa), what is the genotypic ratio among the offspring?
A 1:1
B 1:2:1
C 3:1
D 9:3:3:1

Ans. B

Ques 6. Which of the following best describes the sympathetic pathway's effect on the glomerulus in the kidney?

A. **Sympathetic stimulation causes vasodilation of the afferent arteriole increasing glomerular filtration rate (GFR)**
B. **Sympathetic stimulation causes vasoconstriction of the afferent arteriole, decreasing glomerular filtration rate (GFR)**
C. **Sympathetic stimulation has no effect on the glomerulus**
D. **Sympathetic stimulation causes vasodilation of the efferent arteriole decreasing glomerular filtration rate (GFR)**

Ans. B

Ques 7. Which region of the brain plays a crucial role in regulating glomerular filtrate by influencing the release of hormones involved in kidney function ?

A. Cerebellum
B. Hypothalamus
C. Medulla oblongata
D. Cerebrum

Ans. B

Ques 8. Which of the following terms describes the normal type of chromosome arrangement where an organism has the correct number of chromosomes?

A Monoploidy
B Aneuploidy
C Polyploidy
D Euploidy

Ans. D

Ques 9. In DNA fingerprinting, which of the following techniques is used to amplify specific regions of DNA for analysis?

A Polymerase Chain Reaction (PCR)
B Gel Electrophoresis
C DNA Sequencing
D Southern Blotting

Ans. A

Ques 10. If adenine constitutes 30% of the bases in a DNA molecule, what percentage of the bases is guanine ?

A 30%
B 40%
C 20%
D 25%

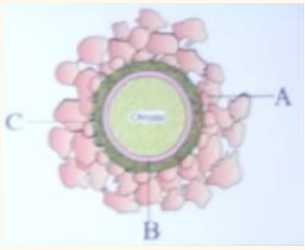
Ans. C

Ques 11. What percentage of the world's area does India occupy ?

A 4.4%
B 6.1%
C 2.4%
D 9.8%

Ans. C

Ques 12. Label the following layers around ovum properly.



A. A- Zona Pellucida; B - Corona Radiata; C - Perivitelline Space
B. A Corona Radiata; B - Zona Pellucida; C- Perivitelline Space
C. A - Corona Radiata; B - Perivitelline Space; C Zona Pellucida
D. A Perivitelline Space; B - Zona Pellucida; C - Corona Radiata

Ans. C

Ques 13. Hydrogen is present in/Hydrogen is used to prepare?

A Olive oil
B Ghee
C Coconut oil
D Vanaspati Ghee

Ans. D

Ques 14. In a trihybrid cross involving three different genes (AaBbCc x AaBbCc), what is the expected genotypic ratio among the offspring?

A. 1:1:1:1:1:1:1:1

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B. 27:9:9:9:3:3:3:1
C. 64:16:16:16:16:4:4:4:4:1
D. 81:27:27:27:27:9:9:9:9:3:3:3:3:1

Ans. B

Ques 15. Which of the following codons codes for the amino acid phenylalanine ?

A AUG
B UUU
C GCA
D CCC

Ans. C

Ques 16. To increase wool production and to improve the quality of wool, the bacterial genes concerned with biosynthesis of cysteine amino acids involved in formation of keratin protein found in wool are cloned and introduced in sheep.
A. cys E, cys M
B. cys F, cys G
C. cys F, cys M
D. lac y, lac a

Ans. A

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Chemistry Questions

Ques. What are the 4 types of hydrocarbons?

Ques. The no. of pi bond present in benzoic acid option

A. 5
B. 4
C. 7
D. 3

Physics Questions

Ques 1. Water is flowing through a horizontal pipe in stream line flow. At the narrowest part of the pipe

A. Velocity is maximum and pressure is minimum.
B. Pressure is maximum and velocity is minimum.
C. Both pressure and velocity are minimum.
D. Both pressure and velocity are maximum.

Ans. A

Ques 2. If an electron jumps from 3rd orbit to second orbit its wavelength is λ, then the wavelength of electron when it jumps from 4th orbit to third orbit in terms of λ is?

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Ans. 20/7 λ

Ques 3. The height from earth's syrface at which acceleration due to qravity becomes g/4 is __? (Where g is acceleratio due to gravity on the surface of earth and R is radius of earth)

A. √2R
B. R
C. R/√2
D. 2R

Ans. B

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