# MHT CET 2024 Question Paper (April 23 - Shift 2)

Physics Questions

**Ques 1. Find the ratio of K.E. and P.E. when a particle performs SHM when it is at (1 / n) times of its amplitude from mean position.**

**A.** $n^2 / 2$
**B.** $n^2 + 1$
**C.** $N^2 - 1$
**D.** $n^2$

**Ans.** C

**Ques 2. Two spheres are given that r = 10 cm and distance between them is 20 cm and axis is passing between the middle of the distance. What is the moment of inertia?**

**Ans.** $14/5\ MR^2$

**Ques 3. Safety speed for vehicle moving along curved horizontal banked road.**

**Ans.** $V = \sqrt{(rg\tan\theta)}$

**Ques 4. In hydrosere succession, which stage comes just before the sedge meadow stage?**
**A. Rooted submerged stage**
**B. Phytoplankton stage**

**C. Reed swamp stage**
**D. Climax stage**

**Ans.** C

**Ques 5. The maximum kinetic energy of the photoelectrons varies.**

**Ans.** K.E $\propto$ $1/\lambda$

**Ques 6. If L is the inductance and R is the resistance then the unit of L/R is:**

**Ans.** Sec.

**Ques 7. A lift weighing 250 kg is to be lifted up at a constant velocity of 0.20m what would be the minimum horsepower of the motor to be used.**

**Ans.** 0.66 hp

**Ques 8. A large number of bullets are fired in all directions with same speed v. What is the maximum area on the ground on which these bullets will spread.**

**Ans.** $A= \pi (u^2/g)^2$

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Biology Questions

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**Ques 1. Which of the following best describes sympatric speciation ?**

A. Speciation that occurs due to geographic isolation
B. Speciation that occurs in the same geographic region without physical separation
C. Speciation that occurs due to migration to a new habitat
D. Speciation that occurs through gradual accumulation of small changes over time

**Ans.** B

**Ques 2. Which of the following causes typhoid fever ?**

A. Salmonella typhi
B. Mosquito
C. Plasmodium
D. Nicotine

**Ans.** A

**Ques 3. Which scientists are credited with proposing the transpiration pull theory, also known as the cohesion-tension theory?**

A. Charles Darwin and Francis Darwin
B. Stephen Hales
C. Henry Dixon and John Joly
D. Ernst Münch

**Ans.** D

**Ques 4. Between which among the following, the relationship is not an example of common syllogism**

A. Orchid and the tree on which it grows

**B. Cattle egret and grazing cattle**
**C. Sea anemone and clown fish**
**D. Female wasp and fig species**

**Ans.** D

**Ques 5. How do most arthropods circulate nutrients and gases throughout their bodies ?**

**A. Open circulatory system**
**B. Closed circulatory system**
**C. No circulatory system**
**D. Diffusion through body tissues**

**Ans.** A

**Ques 6. What is the movement of cytoplasm within a cell called ?**

**A. Endocytosis**
**B. Exocytosis**
**C. Cytokinesis**
**D. Cytoplasmic streaming**

**Ans.** D

**Ques 7.**
**Assertion : Insects are important pollinators for many flowering plants.**
**Reasoning : Insects visit flowers to obtain nectar or pollen, and in the process, they inadvertently transfer pollen from one flower to another, facilitating cross - pollination.**

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A. Both the assertion and reasoning are correct, and the reasoning correctly explains the assertion
B. Both the assertion and reasoning are correct, but the reasoning does not correctly explain the assertion
C. The assertion is correct, but the reasoning is incorrect
D. Both the assertion and reasoning are incorrect

**Ans.** A

**Ques 8. How many times does oxidation occur in the Krebs cycle of cellular respiration ?**

A. Once
B. Twice
C. Three times
D. Four times

**Ans.** D

**Ques 9. How many water molecules are released as byproduct in the Krebs cycle of cellular respiration ?**

A. One
B. Two
C. Three
D. Four

**Ans.** B

**Ques 10. During which phase of its life cycle does the Plasmodium parasite enter the human body when a female Anopheles mosquito bites a human ?**

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A. Sporozoite phase
B. Merozoite phase
C. Gametocyte phase
D. Trophozoite phase

**Ans.** A

**Ques 11. Which of the following structures is responsible for the production of sperm in the male reproductive system ?**

A. Prostate gland
B. Seminal vesicles
C. Epididymis
D. Testes

**Ans.** D

**Ques 12. During double fertilization in angiosperms, which of the following events occurs ?**

A. Fusion of a sperm cell with the egg cell to form a zygote, followed by fusion of another sperm cell with the polar nuclei to form endosperm
B. Fusion of a sperm cell with the egg cell to form the endosperm, followed by fusion of another sperm cell with the polar nuclei to form a zygote
C. Fusion of a sperm cell with the egg cell to form a seed, followed by fusion of another sperm cell with the polar nuclei to form endosperm
D. Fusion of a sperm cell with the polar nuclei to form the zygote, followed by fusion of another sperm cell with the egg cell to form endosperm

**Ans.** A

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Chemistry Questions

**Ques 1. IUPAC Name of Acetone is**

**Ans.** propan-2-one

**Ques 2. IUPAC name of Glyceraldehyde is**

**Ans.** 2,3-dihydroxypropanal

**Ques 3. Find the time required to complete a reaction 90 %.if the reaction is completed 50% in 15 minutes**

**Ans.** 47.57 minutes

**Ques 4. Magnetic Moment of $Mn^{2+}$ is**

**Ans.** 5.9

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