

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

Biology Questions

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.

- 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 ?

- 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

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