

AP EAPCET 2026 May 12 Shift 2

Question Paper (Memory-Based)

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General Instructions

- (i) The test is of 3 hours duration.
- (ii) This test paper consists of 160 questions. The maximum marks are 160.
- (iii) Physics and Chemistry contains 40 questions each and Mathematics contains 80 questions.
- (iv) Each question carries +1 marks for correct answer and there is no negative marking for wrong answer.

1. If x and y be the distances of the object and images formed by a concave mirror from its focus and f be the focal length then:

- (A) $xf = y^2$
- (B) $xy = f^2$
- (C) $\frac{x}{y} = f$
- (D) $\frac{x}{y} = f^2$

2. A particle is executing SHM of amplitude 4 cm and time period 4 s. The time taken by it to move from positive extreme position to half the amplitude is

- (A) 1 s
- (B) $\frac{1}{3}$ s
- (C) $\frac{2}{3}$ s
- (D) $\sqrt{\frac{2}{3}}$ s

3. The masses of two particles having same kinetic energies are in the ratio 2 : 1. Then their

de Broglie wavelengths are in the ratio.

- (A) 2 : 1
 - (B) 1 : 2
 - (C) $\sqrt{2} : 1$
 - (D) $1 : \sqrt{2}$
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4. The coordinates of a particle moving in x-y plane at any instant of time t is $x = 4t^2$; $y = 3t^2$. The speed of the particle at that instant is:

- (A) $10t$
 - (B) $5t$
 - (C) $3t$
 - (D) $2t$
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5. A thin metal disc of radius r floats on water surface and bends the surface downwards along the perimeter making an angle θ with vertical edge of the disc. If the disc displaces a weight of water W and surface tension of water is T , then the weight of metal disc is

- (A) $2\pi rT + W$
 - (B) $2\pi r \cos \theta - W$
 - (C) $2\pi rT \cos \theta + W$
 - (D) $W - 2\pi rT \cos \theta$
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6. If $I = \int \frac{\sin x + \sin^3 x}{\cos 2x} dx = P \cos x + Q \log \left| \frac{\sqrt{2} \cos x - 1}{\sqrt{2} \cos x + 1} \right|$ (where c is a constant of integration), then values of P and Q are respectively

- (A) $\frac{1}{2}, \frac{3}{4\sqrt{2}}$
 - (B) $\frac{1}{2}, \frac{-3}{4\sqrt{2}}$
 - (C) $\frac{1}{2}, \frac{3}{2\sqrt{2}}$
 - (D) $\frac{1}{2}, \frac{-3}{2\sqrt{2}}$
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7. In a triangle $\triangle ABC$, if a, b , and c are in arithmetic progression, then $\cos A + 2 \cos B + \cos C =$

- (A) 1
 - (B) 2
 - (C) $3/2$
 - (D) $\sqrt{3} + 1$
-

8. If the area of triangle ABC is $b^2 - (c - a)^2$, then $\tan B =$

- (A) 1
 - (B) $13/15$
 - (C) $1/4$
 - (D) $8/15$
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9. In a $\triangle ABC$, $a = 1, b = \sqrt{3}$ and $\angle C = \frac{\pi}{6}$. Then the measure of the third side $c =$

- (A) 4
 - (B) 3
 - (C) 1
 - (D) 2
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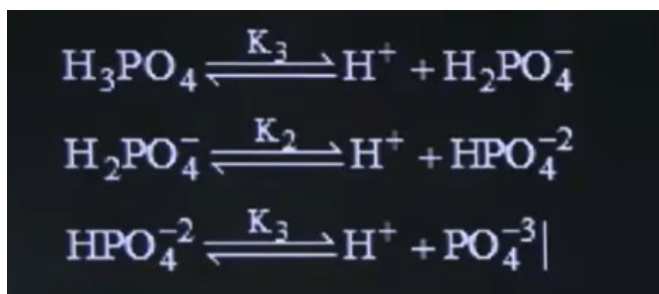
10. The value of

$$\lim_{n \rightarrow \infty} \left\{ \frac{1}{n+m} + \frac{1}{n+2m} + \frac{1}{n+3m} + \dots + \frac{1}{n+nm} \right\}$$

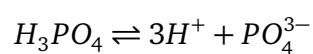
is:

- (A) $\frac{\log_e(m)}{m}$
- (B) $\frac{\log_e(1+m)}{1+m}$
- (C) $\frac{\log_e(1+m)}{m}$
- (D) $\frac{\log_e(1+m)}{1-m}$

11. Consider the equilibrium reactions:



The equilibrium constant, K_c , for the overall dissociation



is:

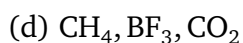
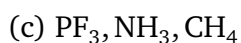
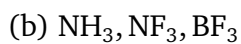
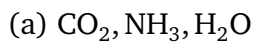
(A) $\frac{K_1}{K_2K_3}$

(B) $K_1K_2K_3$

(C) $\frac{K_2}{K_1K_3}$

(D) $K_1 + K_2 + K_3$

12. Identify the correct set of molecules with zero dipole moment:



13. Which of the following sets are correctly matched?

| Set | Molecule | Geometry |
|-----|-----------------|----------------------|
| I | BrF_5 | Square pyramidal |
| II | XeF_6 | Distorted octahedral |
| III | SF_4 | Square planar |
| IV | PbCl_2 | Linear |

- (a) I and II
 - (b) II and III
 - (c) III and IV
 - (d) I and IV
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14. The energy of the second bohr orbit of the hydrogen atom is -328 kJ mol^{-1} ; hence the energy of the fourth bohr orbit would be:

- (a) -41 kJ/mol
 - (b) -82 kJ/mol
 - (c) -164 kJ/mol
 - (d) -1312 kJ/mol
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15. Identify the correct set of molecules with zero dipole moment:

- (a) $\text{CO}_2, \text{NH}_3, \text{H}_2\text{O}$
 - (b) $\text{NH}_3, \text{NF}_3, \text{BF}_3$
 - (c) $\text{PF}_3, \text{NH}_3, \text{CH}_4$
 - (d) $\text{CH}_4, \text{BF}_3, \text{CO}_2$
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