

AP EAPCET 2026 May 12 Shift 1

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. Let $f(x) = \int \frac{\sqrt{x}}{(1+x)^2} dx (x \geq 0)$. Then $f(3) - f(1)$ is equal to:

- (A) $-\frac{\pi}{12} + \frac{1}{2} + \frac{\sqrt{3}}{4}$
- (B) $\frac{\pi}{12} + \frac{1}{2} - \frac{\sqrt{3}}{4}$
- (C) $-\frac{\pi}{6} + \frac{1}{2} + \frac{\sqrt{3}}{4}$
- (D) $\frac{\pi}{6} + \frac{1}{2} - \frac{\sqrt{3}}{4}$

2. Gas is being pumped into a spherical balloon at the rate of $30 \text{ ft}^3/\text{min}$. Then the rate at which the radius increases when it reaches the value 15 ft is:

- (A) $\frac{1}{30\pi} \text{ ft/min}$
- (B) $\frac{1}{15\pi} \text{ ft/min}$
- (C) $\frac{1}{20\pi} \text{ ft/min}$
- (D) $\frac{1}{25\pi} \text{ ft/min}$

3. Let the function $f(x)$ be defined as $f(x) = \frac{x-|x|}{x}$, then:

- (A) the function is continuous everywhere

- (B) the function is not continuous
(C) the function is continuous when $x < 0$
(D) the function is continuous for all x except zero
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4. If the direction ratios of two lines are given by $l + m + n = 0$ and $mn - 2ln + lm = 0$, then the angle between the lines is:

- (A) $\frac{\pi}{4}$
(B) $\frac{\pi}{3}$
(C) $\frac{\pi}{2}$
(D) 0
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5. The equation of the normal to the curve $y = \log_e x$ at the point $P(1, 0)$ is ____.

- (A) $2x + y = 2$
(B) $x - 2y = 1$
(C) $x - y = 1$
(D) $x + y = 1$
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6. The radius in the hydrogen atom in the ground state is 0.53 \AA . The radius of Li^{+2} ion (atomic number = 3) in a similar state is

- (a) 0.53 \AA
(b) 1.06 \AA
(c) 0.17 \AA
(d) 0.265 \AA
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7. 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
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- (c) -164 kJ/mol
(d) -1312 kJ/mol
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8. The IUPAC name of an element with atomic number 119 is:

- (a) Ununennium
(b) Unnilennium
(c) Unununium
(d) ununoctium
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9. Which of the following orders is not correct for the given property?

- (a) $\text{Li} < \text{Na} < \text{K}$ – metallic radius
(b) $\text{Br} < \text{F} < \text{Cl}$ – electron gain enthalpy
(c) $\text{C} < \text{N} < \text{O}$ – first ionisation enthalpy
(d) $\text{Mg}^{+2} < \text{Na}^+ < \text{F}^-$ – ionic radius
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10. 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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11. The potential energy of a simple harmonic oscillator when the particle is half way to its end point is (where E is the total energy):

- (A) $\frac{2}{3}E$
(B) $\frac{1}{8}E$
(C) $\frac{1}{4}E$
(D) $\frac{1}{2}E$

12. A current loop of magnetic moment 0.5 Am^2 is placed in a magnetic field of 0.4 T . If the loop is rotated from an angle of 0° to 180° , what is the change in potential energy?

- (A) -0.4 J
- (B) 0.4 J
- (C) -0.2 J
- (D) 0.2 J

13. Twenty seven drops of same size are charged at 220 V each. They combine to form a bigger drop. Calculate the potential of the bigger drop.

- (A) 1320 V
- (B) 1520 V
- (C) 1980 V
- (D) 660 V

14. Two polaroids are oriented with their principal planes making an angle of 60° . Then the percentage of incident unpolarized light which passes through the system is:

- (A) 100%
- (B) 50%
- (C) 12.5%
- (D) 37.5%

15. The equation of path of a projectile moving in x-y plane is given by $y = x - \frac{x^2}{25}$, then the initial speed and maximum height of particle will be (take $g = 10 \text{ m/s}^2$):

- (A) $4\sqrt{10} \text{ m/s}$ and $\frac{29}{4} \text{ m}$
- (B) $25\sqrt{10} \text{ m/s}$ and $\frac{21}{4} \text{ m}$
- (C) $2\sqrt{10} \text{ m/s}$ and $\frac{31}{4} \text{ m}$
- (D) $5\sqrt{10} \text{ m/s}$ and $\frac{25}{4} \text{ m}$