

AP EAPCET 2026 May 14 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. The value of the integral $\int_0^{\pi} \frac{x \sin x}{1+\cos^2 x} dx$ is:

- (A) $\frac{\pi^2}{4}$
- (B) $\frac{\pi}{2}$
- (C) $\frac{\pi^2}{2}$
- (D) $\frac{\pi}{4}$

2. The value of the integral $\int_0^{\pi} \frac{x \sin x}{\sin^2 x + 2 \cos^2 x} dx$ is:

- (A) $\frac{\pi}{2}$
- (B) $\frac{\pi^2}{2}$
- (C) $\frac{\pi^2}{4}$
- (D) $\frac{\pi}{4}$

3. The value of the integral $\int_5^9 \frac{\log 3x^2}{\log 3x^2 + \log(588 - 84x + 3x^2)} dx$ is equal to:

- (A) 2
- (B) 1

- (C) $\frac{1}{2}$
(D) 4
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4. The value of the integral $\int_0^{\pi/2} \frac{\sin^{3/2} x}{\sin^{3/2} x + \cos^{3/2} x} dx$ is equal to:

- (A) π
(B) $\pi/2$
(C) $\pi/4$
(D) 0
-

5. The value of the integral $\int_0^{3\pi/2} \frac{\cos^3 x}{\cos^3 x + \sin^3 x} dx$ is:

- (A) 0
(B) 1
(C) $\frac{\pi}{4}$
(D) $\frac{3\pi}{4}$
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6. A liquid flows with velocity 2 m/s through a pipe of diameter 0.01 m. Density = 1000 kg/m³, viscosity = 0.5 kg/m·s. Reynolds number is:

- (A) 20
(B) 40
(C) 100
(D) 200
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7. A 100 g metal at 80°C is placed in 100 g water at 20°C. Final temperature is 40°C. Find specific heat of metal.

- (A) 420 J/kgK
(B) 840 J/kgK
(C) 1680 J/kgK
-

(D) 2100 J/kgK

8. A rod of length 1 m expands by 1 mm when temperature increases by 100°C. Coefficient of linear expansion is:

- (A) 10^{-5}
 - (B) 10^{-4}
 - (C) 10^{-3}
 - (D) 10^{-6}
-

9. Heat required to raise temperature of 2 kg substance by 5°C is 1000 J. Specific heat is:

- (A) 50
 - (B) 100
 - (C) 200
 - (D) 500
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10. Heat flows through a rod of length 1 m and area 1 m². Temperature difference = 10 K. If thermal conductivity = 5 W/mK, heat flow per second is:

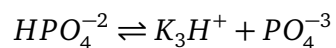
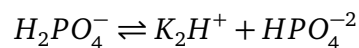
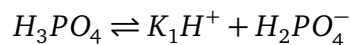
- (A) 10 W
 - (B) 25 W
 - (C) 50 W
 - (D) 100 W
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11. The number of extensive and intensive properties in the list given below is respectively:

Density, enthalpy, mass, temperature, volume, pressure

- (A) 4, 2
 - (B) 1, 5
 - (C) 2, 4
 - (D) 3, 3
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12. Consider the equilibrium reactions:



The equilibrium constant, K_c for the following dissociation $H_3PO_4 \rightleftharpoons 3H^+ + PO_4^{3-}$ is:

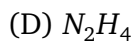
A) $\frac{K_1}{K_2K_3}$

B) $K_1K_2K_3$

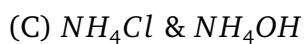
C) $\frac{K_2}{K_1K_3}$

D) $K_1 + K_2 + K_3$

13. The conjugate acid of NH_2^- is:



14. Which one of the pairs will form a buffer solution?



15. The solubility of $Mg_3(PO_4)_2$ is 'S' mol L⁻¹. The solubility product is given by the relation:

(A) S^5

(B) $36S^6$

(C) $6S^5$

(D) $108S^5$
