AP EAPCET 2025 May 27 Shift 1 Question Paper

	Time Allowed :3 Hours	Maximum Marks :160	Total questions :160		
General Instructions					
Read the following instructions very carefully and strictly follow them:					
1. Duration of Exam: 3 Hours					
2. Total Number of Questions: 160 Questions					
3. Section-wise Distribution of Questions:					
• Physics - 40 Questions					
• Chemistry - 40 Questions					
• Mathematics - 80 Questions					
4. Type of Questions: Multiple Choice Questions (Objective)					
5.	5. Marking Scheme: One mark awarded for each correct response				
6.	6. Negative Marking: There is no provision for negative marking.				

1. If x satisfies the equation $3x^2 - 7x + 2 = 0$, then what is the value of $\frac{1}{x_1} + \frac{1}{x_2}$, where x_1 and x_2 are the roots?

(A) $\frac{7}{3}$

(B) $\frac{3}{7}$

(C) $\frac{7}{2}$

(D) $\frac{2}{7}$

2. The equation of the line passing through the point $\left(1,2\right)$ and perpendicular to the line

3x + 4y - 12 = 0 is: (A) 4x - 3y + 1 = 0(B) 4x + 3y - 11 = 0(C) 4x - 3y - 5 = 0(D) 3x + 4y - 10 = 0

3. If $\tan \theta = \frac{3}{4}$ and θ is acute, find $\sin 2\theta$: (A) $\frac{24}{25}$ (B) $\frac{7}{25}$ (C) $\frac{3}{5}$ (D) $\frac{8}{25}$

4. A box contains 5 defective and 15 non-defective bulbs. Two bulbs are drawn at random without replacement. What is the probability that at least one bulb is defective?

(A) $\frac{13}{20}$

(B) $\frac{7}{20}$

(C) $\frac{3}{5}$

5. The 10th term of an arithmetic progression is 35 and the 20th term is 65. What is the first term?(A) 10

(B) 5

(C) 8

(D) 15

6. The radius of a sphere is increased by 20%. What is the percentage increase in its volume?

(A) 72.8%

(B) 66.4%

(C) 48.8%

(D) 62.4%

7. If (x - 2) is a factor of x³ - 4x² + ax + 8, find the value of a:
(A) 4
(B) 2

(C) 3

(D) 5

8. If $\log_2 3 = p$, express $\log_8 9$ in terms of *p*: (A) $\frac{2p}{3}$ (B) $\frac{3p}{2}$ (C) $\frac{4p}{3}$ (D) $\frac{p}{3}$

9. A circle touches the x-axis at point (4, 0) and its center lies on the line x + y = 6. What is the equation of the circle?

(A) $(x - 4)^2 + (y - 2)^2 = 4$ (B) $(x - 4)^2 + (y - 3)^2 = 9$ (C) $(x - 4)^2 + (y - 2)^2 = 9$ (D) $(x - 3)^2 + (y - 3)^2 = 9$

10. The mean of 10 numbers is 18. If one number is excluded, the mean becomes 17. What is the excluded number?

(A) 27

(B) 28

(C) 30

(D) 29

11. If $\vec{a} = 3\hat{i} - 2\hat{j}$ and $\vec{b} = \hat{i} + 4\hat{j}$, find the magnitude of $2\vec{a} - 3\vec{b}$. (A) $\sqrt{85}$ (B) $\sqrt{74}$ (C) $\sqrt{265}$ (D) $\sqrt{105}$ 12. A ball is thrown vertically upward with a velocity of 20 m/s. What is the maximum height reached by the ball? (Take $g = 10 m/s^2$)

- (A) 20 m
- (B) 30 m
- (C) 40 m
- (D) 50 m

13. Two resistors of 4Ω and 6Ω are connected in parallel. What is the equivalent				
resistance?				
(A) 2.4Ω				
$(\mathbf{B}) 5\Omega$				
$(\mathbf{C}) 100 \Omega$				
(\mathbf{D}) 3 Ω				

14. A concave mirror forms an image at twice the focal length from the mirror. What is the nature and size of the image compared to the object?

- (A) Real, inverted, same size
- (B) Real, inverted, magnified
- (C) Virtual, erect, magnified
- (D) Virtual, erect, diminished

15. What is the molarity of a solution prepared by dissolving 10 grams of NaOH (molar mass = 40 g/mol) in 500 mL of solution?

(A) $0.25\,\mathrm{M}$

 $(\mathbf{B})~0.5\,\mathbf{M}$

(C) 1 M (D) 2 M

16. How many moles of CO_2 are produced when 4 moles of C_2H_6 (ethane) combust completely?

 $2C_2H_6+7O_2\rightarrow 4CO_2+6H_2O$

(A) 2 moles

(B) 4 moles

(C) 6 moles

(D) 8 moles

17. A gas occupies 2 liters at a pressure of 3 atm. What will be its volume when the pressure is reduced to 1.5 atm at constant temperature?

(A) 1 L

(B) 2 L

(C) 3 L

(D) 4 L

18. A compound contains 40% carbon, 6.7% hydrogen, and 53.3% oxygen by mass. What is its empirical formula?

- $(A) CH_2O$
- $(B) C_2 H_4 O$
- $(C) CH_3O$
- $(D) \ C_3 H_6 O_3$