

KEAM 2026 Engineering April 17

Question Paper (Memory-Based)

Conducted by CEE Kerala



General Instructions

- (i) **Duration:** The total duration of the examination is 3 hours (180 minutes).
- (ii) **Total Marks:** The complete paper carries a maximum of 600 marks.
- (iii) **Structure:** The paper has 3 Sections:
 - **Section A:** 45 Multiple Choice Questions (Physics).
 - **Section B:** 30 Multiple Choice Questions (Chemistry).
 - **Section B:** 75 Multiple Choice Questions (Mathematics).
- (iv) **Compulsory Questions:** All 150 questions are compulsory.
- (v) Each question has four options. Only **one** option is correct.
- (vi) **Correct Answer:** +4 marks.
- (vii) **Incorrect Answer:** -1 (Negative marking).
- (viii) **Unanswered/Marked for Review:** 0 marks.

Physics

1. The electric field inside a uniformly charged spherical shell of radius R is:

- (A) directly proportional to the charge within the shell
- (B) inversely proportional to R^2
- (C) same as that outside the shell
- (D) zero
- (E) maximum at the centre

2. The distance between two charges $q_1 = +2\mu\text{C}$ and $q_2 = +8\mu\text{C}$ is 15 cm. Calculate the distance from the charge q_1 to the points on the line segment joining the two charges where the electric field is zero.

- (A) 1 cm
- (B) 2 cm
- (C) 3 cm
- (D) 4 cm
- (E) 5 cm

3. Three point charges $4q$, Q , and q are placed in a straight line of length L at points 0 , $L/2$, and L respectively. The net force on charge q is zero. The value of Q is:

- (A) $4q$
- (B) $-q$
- (C) $-0.5q$
- (D) $-2q$
- (E) $3q$

4. A galvanometer of resistance $100\ \Omega$ gives a full scale deflection for a current of 1 mA through it. The resistance required to convert it into a voltmeter which can read up to 2 V is:

- (A) $1175\ \Omega$
- (B) $1200\ \Omega$
- (C) $1525\ \Omega$
- (D) $1900\ \Omega$
- (E) $2025\ \Omega$

5. The magnetic force acting on a charged particle carrying a charge of $3\mu\text{C}$ in a magnetic field of 5 T acting in the y -direction, when the particle velocity is $(\hat{i} + \hat{j}) \times 10^5\text{ ms}^{-1}$, is:

- (A) 0.5 N in $+x$ direction
- (B) 0.2 N in $+y$ direction
- (C) 2 N in $-x$ direction
- (D) 1.5 N in $+z$ direction
- (E) 1 N in $+z$ direction

Chemistry

6. Which of the following compounds has the highest boiling point?

- (A) n-Butane
- (B) Propan-1-ol
- (C) Methoxy methane
- (D) Propanal
- (E) Acetone

7. The major product obtained in the dehydration of ethanol in the presence of H_2SO_4 at 413 K is:

- (A) Ethanoic acid
- (B) Ethanal
- (C) Ethyne
- (D) Ethane
- (E) Ethoxyethane

8. Compound 'A' is obtained by the reaction of benzyl chloride with magnesium metal in dry ether followed by treatment with water. What is the compound 'A'?

- (A) Toluene
 - (B) Benzyl alcohol
 - (C) Phenol
 - (D) Benzene
 - (E) Benzaldehyde
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9. The products obtained by the ozonolysis of 2-methylbut-1-ene are:

- (A) Propanone and ethanal
 - (B) Propanone and methanal
 - (C) Butanone and methanal
 - (D) Ethanal and propanal
 - (E) Butanone and methanol
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10. On heating an aldehyde with Fehling's reagent, a reddish-brown precipitate is obtained due to the formation of:

- (A) Cupric oxide
 - (B) Cuprous oxide
 - (C) Carboxylic acid
 - (D) Silver
 - (E) Copper acetate
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Mathematics

11. The 25th term of 9, 3, 1, $\frac{1}{3}$, $\frac{1}{9}$, ... is:

- (A) $\frac{1}{3^{24}}$
 - (B) $\frac{1}{3^{25}}$
 - (C) $\frac{1}{3^{23}}$
 - (D) $\frac{1}{3^{22}}$
 - (E) $\frac{1}{3^{26}}$
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12. Five digit number is formed using the digits 0, 1, 2, 3, 4, and 5 without repetitions. Number of five digit numbers which are divisible by 10 is:

- (A) 360
 - (B) 240
 - (C) 120
 - (D) 480
 - (E) 520
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13. Let U be the universal set and let A and B be any two subsets of U . If $n(U) = 25, n(A) = 14, n(A \cap B) = 6$ and $n(A \cup B) = 20$, then $n(B')$ is equal to:

- (A) 12
 - (B) 13
 - (C) 14
 - (D) 15
 - (E) 16
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14. If the line $2x - 3y + c = 0$ passes through the focus of the parabola $x^2 = -8y$, then the value of c is equal to:

- (A) 4
- (B) -6
- (C) 6

(D) -4

(E) 2

15. The three vertices of a triangle are $(0, 0)$, $(3, 1)$ and $(1, 3)$. If this triangle is inscribed in a circle, then the equation of the circle is:

(A) $2x^2 + 2y^2 - 2x - 6y = 0$

(B) $x^2 + y^2 - 3x - y = 0$

(C) $x^2 + y^2 - x - 3y = 0$

(D) $2x^2 + 2y^2 - 6x - 2y = 0$

(E) $2x^2 + 2y^2 - 5x - 5y = 0$
