

KEAM Sample Paper 2025

Q1: If a freely falling body covers 80 m in the first 4 seconds, then in the next 4 seconds it covers a distance of

- A) 160 m
- B) 240 m
- C) 320 m
- D) 80 m
- E) 100 m

Q2: The collision in which the two colliding particles move together after the collision is called

- A) completely inelastic collision
- B) elastic collision
- C) partial inelastic collision
- D) collision without transfer of energy
- E) partial elastic collision

Q3: The analogy between linear motion and rotational motion is given. The False one is

- A) Force : Torque
- B) Linear Displacement : Angular displacement
- C) Mass : Moment of inertia
- D) Linear momentum : Angular momentum
- E) Translational energy : Vibrational energy

Q4: If a charged particle enters a uniform magnetic field B , with a velocity v such that v has a component along B , then the charged particle describes

- A) a circular path
- B) an elliptical path
- C) a straight line
- D) a helical path
- E) a parabolic path

Q5: A proton with kinetic energy of 2 MeV is describing a circular path of radius R in a uniform magnetic field. The kinetic energy of the deuteron to describe the same circular path in the same field is

- A) 0.5 MeV
- B) 1 MeV
- C) 2 MeV

- D) 4 MeV
- E) 0.25 MeV

Q6: A person standing in an elevator experiences weight loss when the elevator

- A) moves down with uniform velocity
- B) moves upward with constant acceleration
- C) moves downward with constant acceleration
- D) moves upward with uniform velocity
- E) moves down with variable acceleration

Q7: What is the mass of water formed when 1.6 g of methane gas is completely burnt in excess oxygen?

- A) 1.8 g
- B) 2.4 g
- C) 3.2 g
- D) 3.6 g
- E) 4.8 g

Q8: Which of the following aqueous mixture is a buffer solution?

- A) Acetic acid + Ammonium chloride
- B) Hydrochloric acid + Potassium acetate
- C) Acetic acid + Sodium chloride
- D) Acetic acid + Sodium acetate
- E) Sodium hydroxide + Potassium acetate

Q9: Which of the following statements is true with regard to Daniell cell?

- A) Oxidation occurs at the cathode
- B) Reduction occurs at the anode
- C) E⁰ cell is 1.1 V
- D) Electrical energy produces a chemical reaction
- E) Electrolytes are aqueous solutions of CuSO₄ and FeSO₄.

Q10: Which of the following compound has the lowest boiling point?

- A) Carbon disulphide
- B) Water
- C) Ethanol
- D) Benzene
- E) Chloroform

Q11: The alkene that exhibits optical isomerism is

- A) 2-methyl-2-pentene
- B) 3-methyl-2-pentene

- C) 3-methyl-1-pentene
- D) 4-methyl-1-pentene
- E) 2-methylpentane

Q12: Which is incorrect statement with regard to 1-phenylethanol?

- A) It is a primary alcohol
- B) It is an aromatic alcohol
- C) It forms a ketone on oxidation
- D) It is optically active
- E) It liberates H₂ when treated with metallic sodium

Q13: Which of the following has the least atomic radius?

- A) Boron
- B) Carbon
- C) Nitrogen
- D) Oxygen
- E) Fluorine

Q14: Which of the following is an acidic oxide?

- A) CrO₃
- B) CrO
- C) V₂O₄
- D) V₂O₅
- E) V₂O₃

Q15: In Dumas method of nitrogen estimation 0.14 g of an organic compound gave 22.4 mL of nitrogen at STP. The percentage of the nitrogen in the compound is

- A) 12.5 %
- B) 15 %
- C) 17.5 %
- D) 20 %
- E) 22.5%

Q16: Cheilosis disease and digestive disorders are caused by the deficiency of

- A) ascorbic acid
- B) thiamine
- C) cyanocobalamin
- D) riboflavin
- E) pyridoxine

Q17: If $a^2 + b^2 = 1$, then $\frac{1+(a-ib)}{1+(a+ib)}$ is equal to

- A) $a - ib$
- B) $a + ib$
- C) $-a + ib$
- D) $-a - ib$
- E) $b + ia$

Q18: The number of positive integers that have at most seven digits and contain only the digits 0 and 9 is

- A) 112
- B) 127
- C) 136
- D) 142
- E) 150

Q19: Let $A = \{1, 3, 5, 7, \dots, 21\}$. The number of ways 4 numbers, containing always 11, can be selected from the set A is equal to

- A) 120
- B) 160
- C) 240
- D) 260
- E) 320

Q20: The means of two samples of size 30 and 40 are 35 and 42 respectively. Then the mean of the combined sample of size 70 is

- A) 36
- B) 37
- C) 38
- D) 39
- E) 40

Q21:

If the function $f(x) = \begin{cases} x^2, & \text{for } x < 4 \\ 5x - k, & \text{for } x \geq 4 \end{cases}$ is continuous at $x = 4$, then the value of k is

equal to

- A) 2

- B) 3
- C) 4
- D) 5
- E) 6

Q22: $\int \frac{\sec x}{(\sec x + \tan x)^2} dx =$

- A) $\frac{2}{5(\sec x + \tan x)^4} + C$
- B) $\frac{-1}{2(\sec x + \tan x)^2} + C$
- C) $\frac{2}{3(\sec x + \tan x)^{3/2}} + C$
- D) $\frac{-2}{3(\sec x + \tan x)^3} + C$
- E) $(\sec x + \tan x)^2 + C$

Q23: Let N be the set of all natural numbers. Let R be a relation defined on N given by aRb. If and only if a+2b=11. Then the relation R is

- A) reflexive but not symmetric
- B) not reflexive but symmetric
- C) reflexive and symmetric
- D) neither reflexive nor symmetric
- E) an equivalence relation

Q24: Let a, b, c be positive numbers such that abc = 1. Then the minimum value of a+b+c is

- A) 8
- B) 4
- C) 6
- D) 2
- E) 3

Q25: Number of integers greater than 7000 can be formed using the digits 2,4,5,7,8:

(Repetition of digits is not allowed)

- A) 120

- B) 168
- C) 144
- D) 108
- E) 124

CollegeDekho