



## Question Paper (Memory-Based)

Conducted by Joint Entrance Examination Council, Uttar Pradesh (JEECUP).

### General Instructions

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- (i) The examination is conducted in Computer-Based Test (CBT) mode.
- (ii) Each question carries **+4 marks** for a correct answer and **-1 mark** for a wrong answer.
- (iii) The total number of questions is **100**.
- (iv) The total duration of the exam is **150 minutes** (2 hours and 30 minutes).

1. A rainbow is formed due to which of the following phenomena of light?

- (A) Refraction
  - (B) Dispersion
  - (C) Reflection
  - (D) All of these
- 

2. A particle moves uniformly in a circular path of radius 10 m. It takes 10 s to complete one revolution. Its speed after 20 s will be-

- (A) 1 m/s
  - (B)  $2\pi$  m/s
  - (C) 0
  - (D)  $\pi$  m/s
- 

3. The relative density of silver is 10.8. If the density of water is  $1000 \text{ kg/m}^3$ , then the density of silver will be-

- (A)  $10.8 \times 10^{-3} \text{ kg/m}^3$

- (B)  $10.8 \times 10^3 \text{ kg/m}^3$
  - (C)  $10.8 \text{ kg/m}^3$
  - (D)  $1.08 \times 10^{-3} \text{ kg/m}^3$
- 

**4. A boy of mass 50 kg runs with a speed of 4 m/s. His kinetic energy is-**

- (A) 40 J
  - (B) 4 J
  - (C) 400 J
  - (D) 0.4 J
- 

**5. In diamond, each carbon atom is bonded to four other carbon atoms forming a:**

- (A) Hexagonal structure
  - (B) Rigid three-dimensional structure
  - (C) Football-shaped structure
  - (D) Ring structure
- 

**6. The number of molecules involved in a molecular reaction is called:**

- (A) Molecularity
  - (B) Order of reaction
  - (C) Unimolecular reaction
  - (D) Rate of reaction
- 

**7. Which of the following shows addition reaction?**

- (A)  $CH_4$
- (B)  $C_3H_8$
- (C)  $C_2H_6$
- (D)  $C_2H_4$

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**8. The allotrope of carbon that is a good conductor of heat and electricity is:**

- (A) Diamond
  - (B) Graphite
  - (C) Charcoal
  - (D) Coal
- 

**9. The rate of homogeneous reaction is affected by:**

- (A) Only temperature
  - (B) Only pressure
  - (C) Only concentration of reactants
  - (D) Temperature, pressure, and concentration of reactants
- 

**10. A particle moves with uniform speed along a circular path. The direction of its acceleration (if any) is-**

- (A) Radially outward
  - (B) Radially inward
  - (C) Tangentially
  - (D) No acceleration
- 

**11.  $\tan 1^\circ \cdot \tan 2^\circ \cdot \tan 3^\circ \cdots \tan 89^\circ =$**

- (A) 2
  - (B) 0
  - (C) 3
  - (D) 1
- 

**12. If  $\log_{10} 3 = 0.4771$ ,  $\log_{10} 7 = 0.8450$ , then the value of  $\log_3 7$  is**

- (A) 1.771
  - (B) 1.5710
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(C) 1.8460

(D) 1.6842

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13.  $(x - y)^3 + (y - z)^3 + (z - x)^3 =$

(A)  $3xyz$

(B)  $(x - y)(y - z)(z - x)$

(C)  $3(x - y)(y - z)(z - x)$

(D) 0

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14. If  $x = 2 + \sqrt{3}$ ,  $y = 2 - \sqrt{3}$ , then the value of  $x^{-3} + y^{-3}$  is

(A) 50

(B) 52

(C) 45

(D) 56

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15. The L.C.M. of  $\frac{7}{3}$ ,  $\frac{5}{6}$ ,  $\frac{14}{9}$  is

(A)  $\frac{70}{18}$

(B)  $\frac{70}{9}$

(C)  $\frac{70}{3}$

(D) 70

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