

# CUET 2026 May 18 Shift 1 Chemistry

## Question Paper (Memory-Based)

Conducted by National Testing Agency (NTA)



### General Instructions

- (i) The examination will be conducted in Computer-Based Test (CBT) mode.
- (ii) Each question carries +5 marks for correct answer and -1 mark for wrong answer.
- (iii) The total number of questions are 50.
- (iv) Duration of the exam is 1 hour (60 minutes).

1. The Henry's law constant ( $K_H$ ) values for four gases  $W, X, Y,$  and  $Z$  in water at 298 K are  $4.0 \times 10^4$ ,  $2.5 \times 10^{-2}$ ,  $1.5 \times 10^3$ , and  $8.0 \times 10^1$  bar, respectively. What is the correct order of their solubility in water under the same partial pressure?

- (A)  $W > Y > Z > X$
- (B)  $X > Z > Y > W$
- (C)  $X > Y > Z > W$
- (D)  $W > Z > Y > X$

2. Which of the following organic compounds is expected to have the highest boiling point?

- (A)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$
- (B)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CHO}$
- (C)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$
- (D)  $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$

3. Why do aquatic species, such as fish, generally feel more comfortable in cold water than in warm water?

- (A) The solubility of oxygen gas increases as the temperature of the water decreases.
- (B) The solubility of oxygen gas decreases as the temperature of the water decreases.

- (C) The Henry's law constant ( $K_H$ ) for oxygen decreases as temperature increases.
- (D) Warm water contains more dissolved toxic gases that harm aquatic metabolism.
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**4. What are the starting materials used in the industrial synthesis of the pesticide DDT?**

- (A) Chlorobenzene and Chloroform
- (B) Chlorobenzene and Chloral
- (C) Benzene and Chloral
- (D) Chlorobenzene and Hexachloroethane
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**5. Which of the following statements is TRUE regarding the transition state of a bimolecular nucleophilic substitution ( $S_N2$ ) reaction?**

- (A) The central carbon atom transitions to an  $sp^3$  hybridization state with a tetrahedral geometry.
- (B) The central carbon atom adopts an unstable pentacoordinate arrangement with approximate  $sp^2$  hybridization.
- (C) The reaction forms a stable, isolation-ready carbocation intermediate.
- (D) Both the nucleophile and the leaving group carry full, non-interacting formal charges.
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**6. Ethylene glycol (ethane-1,2-diol) is widely added to car radiators as an antifreeze agent. How does its addition protect the engine in extreme climates?**

- (A) It raises the freezing point of water and lowers its boiling point.
- (B) It lowers the freezing point of water and raises its boiling point.
- (C) It lowers both the freezing point and the boiling point of water equally.
- (D) It reacts chemically with the metal radiator walls to reduce thermal expansion.
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**7. Which of the following oxidizing agents is mild enough to selectively oxidize an aldehyde to a carboxylic acid without cleaving other sensitive carbon-carbon single bonds?**

- (A) Tollens' reagent
- (B) Concentrated  $H_2SO_4$  at high temperatures
- (C) Ozone followed by  $Zn / H_2O$
- (D)  $LiAlH_4$  in dry ether
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**8. What are the primary reagents and catalysts required to carry out the Gattermann-Koch reaction?**

- (A) CO, HCl, and anhydrous  $\text{AlCl}_3$  / CuCl
  - (B)  $\text{CHCl}_3$  and aqueous NaOH
  - (C) HCN, HCl, and anhydrous  $\text{AlCl}_3$
  - (D)  $\text{CH}_3\text{Cl}$  and anhydrous  $\text{AlCl}_3$
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**9. Among the given pairs of isomeric organic compounds, which pair is correctly arranged in order of INCREASING boiling point?**

- (A) *n*-Butyl alcohol < *t*-Butyl alcohol
  - (B) *t*-Butyl chloride < *n*-Butyl chloride
  - (C) *p*-Dichlorobenzene < *o*-Dichlorobenzene
  - (D) Isopentane < Neopentane
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**10. When benzaldehyde is subjected to oxidation using acidified potassium permanganate ( $\text{KMnO}_4$ ), what organic product is formed?**

- (A) Benzyl alcohol
- (B) Benzoic acid
- (C) Benzene
- (D) Acetophenone