

# CUET 2026 May 19 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. For a first-order reaction, if the time taken for 90% completion is  $t$ , what will be the approximate time taken for 99.9% completion of the same reaction?

- (A)  $2t$
- (B)  $3t$
- (C)  $4t$
- (D)  $1.5t$

2. According to collision theory, increasing the starting concentration of a collection of reacting molecules directly results in a change in which of the following system factors?

- (A) Activation energy
- (B) Collision frequency
- (C) Rate constant
- (D) Fraction of molecules with energy greater than activation energy

3. What is the cell potential ( $E_{\text{cell}}$ ) for a concentration cell consisting of two hydrogen electrodes at 298 K, where the anode compartment is at  $\text{pH} = 3$  and the cathode compartment is at  $\text{pH} = 1$  under standard pressure conditions?

- (A) 0.0591 V

- (B) 0.1182 V  
(C) -0.1182 V  
(D) 0.0000 V
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4. Which of the following expressions correctly relates the limiting molar conductivity ( $\Lambda_m^\circ$ ) of aluminum sulfate,  $\text{Al}_2(\text{SO}_4)_3$ , to its individual ionic components according to Kohlrausch's Law?

- (A)  $\Lambda_m^\circ = \lambda^\circ(\text{Al}^{3+}) + \lambda^\circ(\text{SO}_4^{2-})$   
(B)  $\Lambda_m^\circ = 2\lambda^\circ(\text{Al}^{3+}) + 3\lambda^\circ(\text{SO}_4^{2-})$   
(C)  $\Lambda_m^\circ = 3\lambda^\circ(\text{Al}^{3+}) + 2\lambda^\circ(\text{SO}_4^{2-})$   
(D)  $\Lambda_m^\circ = \frac{1}{2}\lambda^\circ(\text{Al}^{3+}) + \frac{1}{3}\lambda^\circ(\text{SO}_4^{2-})$
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5. What is the correct increasing order of basic strength for the following amines when measured inside an aqueous medium?

(I)  $\text{CH}_3\text{NH}_2$ , (II)  $(\text{CH}_3)_2\text{NH}$ , (III)  $(\text{CH}_3)_3\text{N}$ , (IV)  $\text{NH}_3$

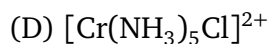
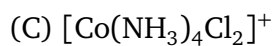
- (A) IV < III < I < II  
(B) IV < I < II < III  
(C) III < I < II < IV  
(D) I < II < III < IV
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6. An organic compound with the molecular formula  $\text{C}_7\text{H}_8\text{O}$  is completely insoluble in water but dissolves readily in an aqueous NaOH solution. When treated with bromine water, it forms a white precipitate. Identify the compound.

- (A) Benzyl alcohol  
(B) Anisole  
(C) *o*-Cresol  
(D) Methoxybenzene
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7. Which of the following coordination complex ions exhibits structural asymmetry leading to optical isomerism?

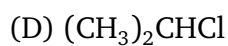
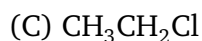
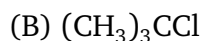
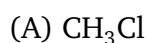
- (A)  $\text{trans} - [\text{Co}(\text{en})_2\text{Cl}_2]^+$   
(B)  $\text{cis} - [\text{Co}(\text{en})_2\text{Cl}_2]^+$
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**8. Using Crystal Field Theory (CFT), what is the correct electronic configuration and magnetic behavior of the high-spin complex  $[\text{Fe}(\text{H}_2\text{O})_6]^{2+}$ ?**



**9. Which of the following alkyl halides will undergo the fastest rate of nucleophilic substitution via an  $\text{S}_{\text{N}}1$  mechanism when treated with an aqueous nucleophile?**



**10. When phenol is treated with chloroform ( $\text{CHCl}_3$ ) in the presence of an aqueous sodium hydroxide solution followed by acidification, a prominent aromatic aldehyde is generated. What is the name of this organic reaction?**

(A) Kolbe's Reaction

(B) Reimer-Tiemann Reaction

(C) Rosenmund Reduction

(D) Friedel-Crafts Acylation

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