



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_{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 (Λ_m°) 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) CH_3NH_2 , (II) $(\text{CH}_3)_2\text{NH}$, (III) $(\text{CH}_3)_3\text{N}$, (IV) NH_3

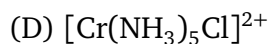
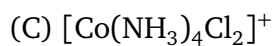
- (A) $\text{IV} < \text{III} < \text{I} < \text{II}$
(B) $\text{IV} < \text{I} < \text{II} < \text{III}$
(C) $\text{III} < \text{I} < \text{II} < \text{IV}$
(D) $\text{I} < \text{II} < \text{III} < \text{IV}$
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6. An organic compound with the molecular 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?

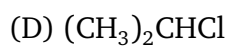
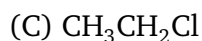
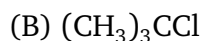
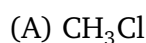
- (A) $\text{trans} - [\text{Co}(\text{en})_2\text{Cl}_2]^+$
(B) $\text{cis} - [\text{Co}(\text{en})_2\text{Cl}_2]^+$
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8. Using Crystal Field Theory (CFT), what is the correct electronic configuration and magnetic behavior of the high-spin complex $[\text{Fe}(\text{H}_2\text{O})_6]^{2+}$?



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 (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?

