

CUET 2026 May 30 Shift 1 Chemistry

Question Paper (Memory-Based)

Conducted by National Testing Agency (NTA)



1. A compound *A* having molecular formula C_8H_8O gives a deep violet colour with neutral $FeCl_3$. Treatment of *A* with excess CH_3I/K_2CO_3 gives compound *B*. Ozonolysis of *B* followed by reductive workup (Zn/H_2O) produces one mole of anisaldehyde and one mole of formaldehyde. The anisaldehyde obtained is then subjected to Cannizzaro reaction using concentrated $NaOH$. The number of moles of anisyl alcohol formed from 2 moles of *A* is:

- (A) 0.5
 - (B) 1
 - (C) 2
 - (D) 4
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2. An equimolar mixture of benzaldehyde and acetaldehyde is treated with dilute $NaOH$. The major product formed is isolated and then subjected to $I_2/NaOH$. The number of moles of yellow precipitate obtained per mole of benzaldehyde initially taken is:

- (A) 0
 - (B) 0.5
 - (C) 1
 - (D) 2
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3. The molar conductivities at infinite dilution of HCl , CH_3COONa and CH_3COOH are 426.0, 91.0 and $390.5 \Omega^{-1}cm^2mol^{-1}$, respectively. If the molar conductivity of 0.01 *M* acetic acid solution is $15.62 \Omega^{-1}cm^2mol^{-1}$, the value of K_a is:

- (A) 1.8×10^{-5}
 - (B) 1.8×10^{-4}
 - (C) 1.8×10^{-3}
 - (D) 1.8×10^{-6}
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4. For the electrochemical cell



at 298 K, $E_{\text{cell}}^{\circ} = 1.10\text{ V}$. The minimum external potential required to just stop the spontaneous cell reaction is closest to:

- (A) 0.98 V
 - (B) 1.04 V
 - (C) 1.16 V
 - (D) 1.22 V
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5. For a first-order reaction, the rate constant increases by a factor of 16 when the temperature is increased from 300 K to 340 K. The activation energy of the reaction is closest to:

- (A) 28 kJ mol⁻¹
 - (B) 57 kJ mol⁻¹
 - (C) 85 kJ mol⁻¹
 - (D) 114 kJ mol⁻¹
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6. A coordination compound $[\text{CoF}_6]^{3-}$ is converted into $[\text{Co}(\text{CN})_6]^{3-}$. Which of the following correctly represents the hybridization and number of unpaired electrons in the final complex?

- (A) sp^3d^2 , 4 unpaired electrons
 - (B) d^2sp^3 , 0 unpaired electrons
 - (C) sp^3d^2 , 2 unpaired electrons
 - (D) d^2sp^3 , 2 unpaired electrons
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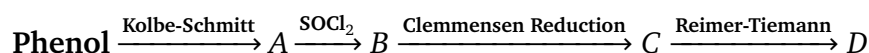
7. An octahedral coordination compound of chromium(III) reacts with one mole of EDTA to form a stable chelate. The original complex has the formula $[\text{Cr}(\text{en})_2\text{Cl}_2]^+$, where en represents ethane-1,2-diamine. The total number of geometrical and optical isomers possible for the complex is:

- (A) 2
 - (B) 3
 - (C) 4
 - (D) 5
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8. Which of the following statements regarding lanthanoids is correct?

- (A) Basicity of lanthanoid hydroxides increases from $La(OH)_3$ to $Lu(OH)_3$
 - (B) Atomic radii increase regularly from La to Lu
 - (C) Lanthanoid contraction is mainly due to poor shielding by $4f$ electrons
 - (D) Cerium exhibits only the +3 oxidation state
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9. Phenol is subjected to the following sequence of reactions:



The functional group present in the final product D is:

- (A) Only $-CHO$
 - (B) Only $-COOH$
 - (C) Both $-OH$ and $-CHO$
 - (D) Both $-OH$ and $-COOH$
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10. Assertion (A): Sucrose is a non-reducing sugar and does not exhibit mutarotation.

Reason (R): In sucrose, both anomeric carbon atoms are involved in glycosidic bond formation.

- (A) Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.
 - (B) Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.
 - (C) Assertion is true, but Reason is false.
 - (D) Assertion is false, but Reason is true.
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