



Guru Aanklan

**Grand
Test**

**HSC Examination
Chemistry Code - Set - A**

Marks : 70

Time : 3 Hours

Instructions :

- All the questions are compulsory.
- Section 'A' contains Q.No. 1 to 4 of multiple choice Questions carrying **ONE** mark each. Q.No. 5 to 8 are very short answer type questions carrying **ONE** mark each.
- Section 'B' contains Q.No. 9 to 15 of short answer type Questions carrying **TWO** marks each. Internal choice is provided only one Question.
- Section 'C' contains Q.No. 16 to 26 of short answer type Questions carrying **THREE** marks each. Internal choice is provided any one of the Question.
- Section 'D' contains Q.No. 27 to 29 of long answer type Questions carrying **FIVE** marks each. Internal choice is provided to each Question.
- Use log table if necessary. Use of calculator is not allowed.
- Given data Z of Fe = 26, Z of Gd = 64.

Molar mass of Ag = 108 g mol⁻¹, $R = 0.0821 \text{ L atm K}^{-1} \text{ mol}^{-1}$

$R = 8.314 \text{ J K}^{-1} \text{ mol}^{-1}$

SECTION - A (1 Mark Each)

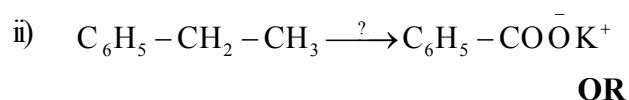
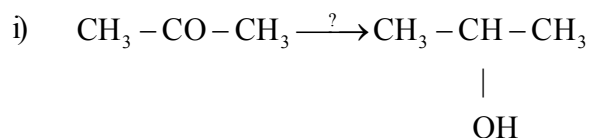
- Q.1 The units of rate of a reaction and rate constant are same for a reaction of order
(A) zero (B) one (C) two (D) fractional
- Q.2 The edge length of a body centred cubic crystal of an element is 2.8 Å. The radius of the constituent atom is
(A) 0.99 Å (B) 1.21 Å (C) 1.4 Å (D) 2.6 Å
- Q.3 Oxidation number of Cr in $[\text{Cr}(\text{NH}_3)_6](\text{NO}_3)_3$ is
(A) +1 (B) +2 (C) +3 (D) +4
- Q.4 Identify 'B' in the following reactions

$$\text{C}_6\text{H}_5 - \text{CH}_2 - \text{Br} \xrightarrow[\text{KCN}]{\text{alc.}} \text{'A'} \xrightarrow{\text{Na/ethanol}} \text{B}$$
 (A) $\text{C}_6\text{H}_5 - \text{CH}_2 - \text{NH}_2$ (B) $\text{C}_6\text{H}_5 - \text{CH}_2 - \text{CH}_2 - \text{NH}_2$
 (C) $\text{C}_6\text{H}_5 - \text{NH}_2$ (D) $\text{C}_6\text{H}_5 - \text{CH}_2 - \text{OH}$
- Q.5 What is the enthalpy of fusion of ice if enthalpy of sublimation of ice is 51.08 kJ mol⁻¹ and the enthalpy of vapourization of water is 45.07 kJ mol⁻¹?

- Q.6 What happens to density of group 17 elements as one goes down the group and why?
- Q.7 Write the equation for the preparation of dimethyl ether using diazomethane?
- Q.8 Write the structural formula of monomers used to prepare PVC.

SECTION - B (2 Marks Each)

- Q.9 Why has the molar conductance of an electrolyte the maximum value at infinite dilution.
- Q.10 Draw diagram for electrolytic refining of blister copper.
- Q.11 Define (a). Osmosis; (b). Isotonic solutions.
- Q.12 Explain wurtz fitting reaction by coupling of two aryl halides?
- Q.13 What are interstitial compounds? Why do these compounds have higher melting point than corresponding pure metals.
- Q.14 Name the reagents used in the following reactions -



- Q.14 Explain giving example -
- a) Decarboxylation in carboxylic acid.
- b) Ring substitution in carboxylic acid.
- Q.15 How is glucose prepared on commercial scale?

SECTION - C (3 Marks Each)

- Q.16 Silver crystallises in FCC structure. If density of silver is 10.51 gm^{-3} , calculate the volume of unit cell. [Atomic mass of silver = 108 g^{-1}]
- Q.17 Explain Hoffmann elimination reaction with example.
- Q.18 The boiling point of $0.1 \text{ m NH}_4\text{OH}$ solution is 373.0527 K . Find van't Hoff factor, degree of dissociation and dissociation constant for NH_4OH ($K_b = 0.52 \text{ K kg mol}^{-1}$)
- Q.19 What is the action of the following on acetic acid?
- (A) NH_3 (B) PCl_5 (C) SOCl_2
- Q.20 Explain the following terms with examples :
- (A) Cationic detergents (B) Anionic detergents
- (C) Non - ionic detergents
- Q.21 Define standard electrode potential. Write any two advantages and two disadvantages of SHE.

OR

- Q.21 State Kohlrausch's law of independent migration of ions. Give two advantages and limitations of fuel cells.
- Q.22 Complete the reaction with the name of the product written :

