

Assignment – Chemistry

Class -XII

Q-1 According to the Nernst equation, how does the cell potential  $E_{cell}$  change when the concentration of  $Zn^{2+}$  ions increases in a Daniell cell?

- o (a) Increases
- o (b) Remains constant
- o (c) Decreases
- o (d) Fluctuates to zero

Q-2 What is the value of the standard cell potential for a cell at equilibrium?

- o (a) 1.1 V
- o (b) 0 V
- o (c) -0.76 V
- o (d) Depends on the electrolyte

Q-3 Which metal is used for the sacrificial protection of iron (cathodic protection)?

- o (a) Copper
- o (b) Zinc
- o (c) Silver
- o (d) Platinum

Q-4 Why does the rusting of iron become quicker in saline water compared to pure water?

Q-5 Why are fuel cells considered more efficient and environmentally friendly than ordinary dry cells?

Q-6 Why is hydrogen gas evolved at the cathode instead of sodium during the electrolysis of an aqueous NaCl solution?

Q-7 Unlike dry cell, the mercury cell has a constant cell potential throughout its useful life. Why?

Q-8 A galvanic cell has an electrical potential of 1.1V. If an opposing potential of 1.1V is applied to this cell, what will happen to the cell



reaction and current flowing through the cell?

Q-9 A current of 2.0 A is passed through a solution of  $\text{CuSO}_4$  for 15 minutes. Calculate the mass of copper deposited at the cathode. (Atomic mass of Cu = 63.5 g mol<sup>-1</sup>)

Q-10 The resistance of a conductivity cell containing 0.001 M KCl solution at 298 K is 1500 Ohm. What is the cell constant if the conductivity of 0.001 M KCl solution at 298 K is  $0.146 \times 10^{-3} \text{ S cm}^{-1}$

Q-11 Value of standard electrode potential for the oxidation of  $\text{Cl}^-$  ions is more positive than that of water, even then in the electrolysis of aqueous sodium chloride, why is  $\text{Cl}^-$  oxidised at anode instead of water?

Q-12 Why does the conductivity of an electrolyte solution decrease with dilution, while molar conductivity increases?

Q-13 How does the electrochemical series help predict whether a redox reaction is feasible in a given direction?

Q-14 What is the function of a salt bridge in an electrochemical cell? Can a galvanic cell work without it? Explain.

