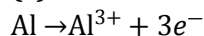


Topic :- Electro Chemistry

1 (c)



The charge required = 3×96500 C

2 (b)

Eq. of H_2 = Eq. of Cu

$$\therefore \frac{0.504}{1} = \frac{W}{63.5/2}$$

$$\therefore W_{\text{Cu}} = 16 \text{ g}$$

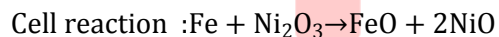
3 (a)

$$E^{\circ} = \frac{0.059}{n} \log K_{eq} \text{ and } \Delta G^{\circ} = -nE^{\circ}F$$

$\therefore \Delta G^{\circ} = +ve$, E° will be $-ve$ and $K_{eq} < 1$; one should not write $\Delta G^{\circ} > 0$.

4 (d)

$$E_{\text{cell}}^{\circ} = 0.87 + 0.40 = 1.27 \text{ V}$$



5 (a)

The given values are E_{RP}° . More is E_{RP}° more is the tendency to gain electron or to show reduction or to show strong oxidant nature.

6 (d)

$$\begin{aligned} E_{\text{cell}}^{\circ} &= E_{OP_{\text{Sn}}}^{\circ} + E_{RP_{\text{Fe}}}^{\circ} = 0.14 + (-0.44) \\ &= -0.30 \text{ V} \end{aligned}$$

8 (a)

Smallest ion possesses maximum mobility.

9 (a)

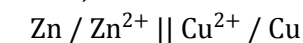
$$\Lambda_M^{\circ} = \Lambda_a^{\circ} + \Lambda_c^{\circ}$$

10 (c)

Molten NaCl possesses Na^+ and Cl^- ions.

11 (a)

Given, that



\therefore Zn is anode and Cu is cathode.

Given,

$$\text{Zn}^{2+} / \text{Zn} = - 0.76 \text{ V}$$

$$\text{Cu}^{2+} / \text{Cu} = + 0.34 \text{ V}$$

$$E_{\text{cell}} = E_{\text{cathode}} - E_{\text{anode}}$$

$$= 0.34 - (- 0.76)$$

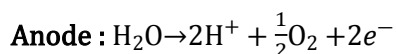
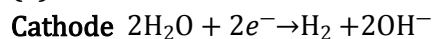
$$= 0.34 + 0.76$$

$$= 1.10 \text{ V}$$

12 (a)

Net redox change is zero.

13 (a)



14 (d)

More is E_{OP} , more is reducing power of metal.

15 (b)

The charge required to liberate one gram equivalent of an element is always equal to 1 faraday (*i.e.*, = 96500 C).

16 (c)

pH < 7; Aqueous solution of CuSO_4 is acidic in nature. Furthermore some drops of H_2SO_4 is also added during electrolysis.

17 (a)

Anode is positive electrode and cathode is -ve electrode in electrolytic cell whereas, anode is -ve electrode and cathode is +ve electrode in electrochemical cells.

18 (c)

$$\Delta G = \Delta H - T \Delta S$$

For a spontaneous cell reaction, ΔH should be negative and ΔS should be positive.

Hence, ΔG should be negative.

19 (a)

Cell reaction is $\text{Mg} + \text{Sn}^{2+} \rightarrow \text{Mg}^{2+} + \text{Sn}$

$$E_{\text{cell}} = E_{\text{cell}}^{\circ} - \frac{0.0591}{2} \log \frac{[\text{Mg}^{2+}]}{[\text{Sn}^{2+}]}$$

$$= (2.34 - 0.14) - \frac{0.0591}{2} \log \frac{10^{-2}}{10^{-1}} = 2.23 \text{ V}$$

20 (a)

pH of solution increases due to formation of LiOH or due to increase in $[\text{OH}^-]$ because H^+ ions are discharged at cathode in preference to Li^+ .

ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	C	B	A	D	A	D	D	A	A	C
Q.	11	12	13	14	15	16	17	18	19	20
A.	A	A	A	D	B	C	A	C	A	A

PE