

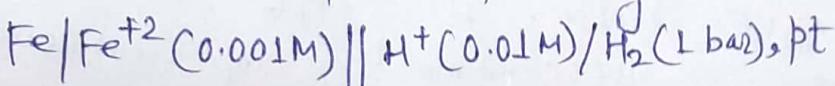
Electrochemistry

Q-1 Which of the following is merit equation.

- (i) $E = E^\circ + \frac{0.0591}{n} \log \left[\frac{M^{n+}}{M^0} \right]$ (ii) $E = E_{cell}^\circ - \frac{2.303 R T}{n F} \log \frac{1}{\left[M^{n+} \right]}$
 (iii) Both of them (iv) None of these.

Q-2 Define the term molar conductivity of a soln and how Molar conductivity change with change in concentration of a soln weak and strong electrolyte.

Q-3 Calculate emf of the following cell at 298K.



[Given $E_{cell}^\circ = \text{Fe}^{+2}/\text{Fe} = -0.44\text{V}$, $E_{cell}^\circ \text{ H}^+/\text{H}_2 = 0.00\text{V}$]

Q-4 The Molar conductivity of $0.025\text{ mol/L CH}_3\text{COO}^-$ is $46.1\text{ S cm}^2/\text{mol}$. Calculate its degree of dissociation and dissociation constant. Given $\lambda^\circ(\text{H}^+) = 349.6\text{ S cm}^2\text{ mol}^{-1}$ and $\lambda^\circ(\text{CH}_3\text{COO}^-) = 54.6\text{ S cm}^2/\text{mol}$

Q-5 Define Kohlrausch law?

Q-6 Which of the following is unit of dm.

- (i) $\text{s}^2\text{m}^2\text{mol}$ (ii) $\text{s}^{-2}\text{mol}^{-1}$ (iii) $\text{s m}^2\text{mol}^{-1}$ (iv) (i) and (ii)

Q-7 The conductivity of electrolytic soln depend on.

- (i) Size of ions
 (ii) Nature of solvent
 (iii) Concentration of electrolyte
 (iv) All of these.

Q.8 A solution of CuSO_4 is electrolysed for 600 s with a current of 1.5 amperes. What is the mass of copper deposited at the cathode?

Q.9. Define electrochemical cell. What happens if external potential applied becomes greater than E°_{cell} of electrochemical cell.

Q.10. Calculate d_m° for CaH_2 among MgO_2 from data given table. $H^+ = 349.6 \text{ cm}^2/\text{mol}^2$, $\text{Na}^+ = 50.1 \text{ cm}^2/\text{mol}^2$
~~Ca²⁺~~ $119.05 \text{ cm}^2/\text{mol}^2$, $\text{SO}_4^{2-} = 160.05 \text{ cm}^2/\text{mol}^2$
 $\text{Mg}^{2+} = 106.05 \text{ cm}^2/\text{mol}^2$, $\text{Cl}^- = 76.35 \text{ cm}^2/\text{mol}^2$