Solution de Rattrapage :

Exercice 1 : (6pts)

1. $G = \frac{I}{U} = \frac{0.80}{0.50} = 1.6mS$ **1**

2. $\partial_{sol} = C_{K^+} \times \lambda_{K^+} + C_{Cl^-} \times \lambda_{Cl^-}$ **1**

3. $\partial_{sol} = 1 \times 10^{1}\left(7.32 \times 10^{-3} + 7.63 \times 10^{-3}\right) = 0.1495 \text{ S.m}^{-1}$ **1**

4. $K' = \frac{\partial}{G} = \frac{0.1495}{1.6 \times 10^{-3}} = 93.43 \text{ m}^{-1}$ $\Delta K = K' - K = 93.43 - 90 = 3.43 \text{ m}^{-1}$ **3**

Exercice 2 : (10pts)

$Cu^{2+}_{(aq)} + 2e^- \rightleftarrows Cu_{(s)}$ $E_{Cu^{2+}/Cu} = E^{\circ}_{Cu^{2+}/Cu} + \frac{0.06}{2}\log\left[Cu^{2+}\right] = 0.31V$ **2**

$Fe^{2+}_{(aq)} + 2e^- \rightleftarrows Fe_{(s)}$ $E_{Fe^{2+}/Fe} = E^{\circ}_{Fe^{2+}/Fe} + \frac{0.06}{2}\log\left[Fe^{2+}\right] = -0.47V$ **2**

$f.e.m = E_+ - E_- = 0.31 + 0.47 = 0.78V$ **1**

3. $Cu^{2+}_{(aq)} + Fe_{(s)} \rightleftarrows Fe^{2+}_{(aq)} + Cu_{(s)}$ **1**

A l'équilibre :

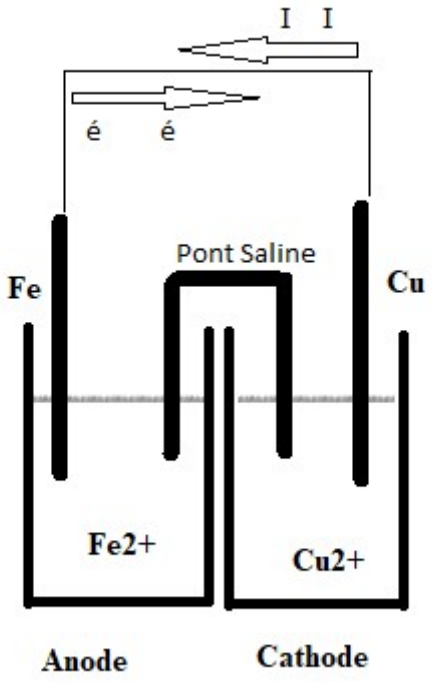
$E_{Cu^{2+}/Cu} = E_{Fe^{2+}/Fe} \Rightarrow E^{\circ}_{Cu^{2+}/Cu} + 0.03\log\left[Cu^{2+}\right] = E^{\circ}_{Fe^{2+}/Fe} + 0.03\log\left[Fe^{2+}\right]$

$\Rightarrow E^{\circ}_{Cu^{2+}/Cu} - E^{\circ}_{Fe^{2+}/Fe} = 0.03\log\frac{\left[Fe^{2+}\right]}{\left[Cu^{2+}\right]} = 0.03\log K \Rightarrow K = 10^{26}$ **1**

4.

$f.e.m = 0.55V = E_{Cu^{2+}/Cu} - E_{Fe^{2+}/Fe} = E^{\circ}_{Cu^{2+}/Cu} + 0.03\log\left[Cu^{2+}\right] - E^{\circ}_{Fe^{2+}/Fe} - 0.03\log\left[Fe^{2+}\right]$

$\Rightarrow \log\left(\frac{\left[Fe^{2+}\right]}{\left[Cu^{2+}\right]}\right) = \frac{E^{\circ}_{Cu^{2+}/Cu} - E^{\circ}_{Fe^{2+}/Fe} - 0.55}{0.03} \Rightarrow \frac{\left[Fe^{2+}\right]}{\left[Cu^{2+}\right]} = 10^{7.67}$ **1**



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Exercice 03 : (4pts)

1. $\partial_{sol} = C_{NH_4^+} \times \lambda_{NH_4^+} + C_{Cl^-} \times \lambda_{Cl^-}$ 1

Avec : C= La concentration molaire et λ = La conductivité molaire ionique 1

2.

- Augment
- Diminue 2
-Augment