

Guess Paper – 2014
Class – XII
Subject – Chemistry

Electrochemistry

1. Calculate the molar conductance for NH_4OH at infinite dilution if the molar conductances at infinite dilution for $\text{Ba}(\text{OH})_2$, BaCl_2 and NH_4Cl are 523.28 , 280 and $129.8 \text{ ohm}^{-1} \text{ cm}^2 \text{ mol}^{-1}$ respectively.

2. Calculate the equilibrium constant of the reaction at 298 K

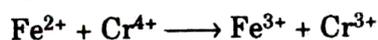


Given $E^\circ_{\text{Fe}^{3+}/\text{Fe}^{2+}} = 0.77 \text{ V}$, $E^\circ_{\text{Sn}^{4+}/\text{Sn}^{2+}} = 0.15 \text{ V}$, $R = 8.314 \text{ J K}^{-1} \text{ mol}^{-1}$, $F = 96500 \text{ C mol}^{-1}$.

3. Calculate the equivalent conductance of $1 \text{ M H}_2\text{SO}_4$ solution if its conductivity is $2.6 \times 10^{-2} \text{ ohm}^{-1} \text{ cm}^{-1}$.

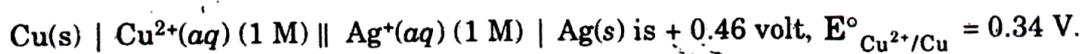
4. The resistance of 0.01 M NaCl solution is 200Ω at 25°C . Cell constant of the conductivity cell is unity. Calculate Λ_m of the solution.

5. Calculate the equilibrium constant for the reaction



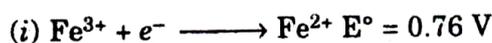
Given $E^\circ_{\text{Cr}^{4+}/\text{Cr}^{3+}} = 1.44 \text{ V}$, $E^\circ_{\text{Fe}^{3+}/\text{Fe}^{2+}} = 0.680$

6. Calculate the standard reduction electrode potential of Ag^+/Ag electrode. When the cell potential, E° , for the cell,

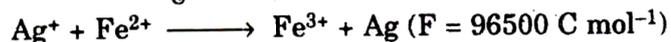


7. Calculate the molar conductivity at infinite dilution (Λ°_m) for NH_4OH from the following data. Λ°_m for NH_4Cl , NaOH , and NaCl at infinite dilution are 129.8 , 248.1 , and $126.45 \text{ S cm}^2 \text{ mol}^{-1}$.

8. The half reactions are



Calculate K_C for the following reaction at 25°C .

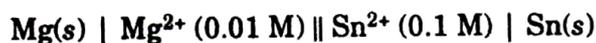


9. Write the Nernst equation and calculate the e.m.f. of the following cell at 298 K



Given $E^\circ_{\text{Cu}^{2+}/\text{Cu}} = 0.34 \text{ V}$, $E^\circ_{\text{Ag}^+/\text{Ag}} = 0.80 \text{ V}$

10. Calculate the cell e.m.f. at 25°C for the following cell :



Given $E^\circ_{\text{Mg}^{2+}/\text{Mg}} = -2.34 \text{ V}$, $E^\circ_{\text{Sn}^{2+}/\text{Sn}} = -0.136 \text{ V}$, $F = 96500 \text{ C mol}^{-1}$

Calculate the maximum work that can be accomplished by the operation of this cell.

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EQUILIBRIUM CLASSES

PRACTICE PROBLEMS

TOPIC – ELECTROCHEMISTRY

Attempt all questions.

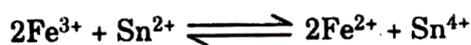
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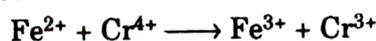


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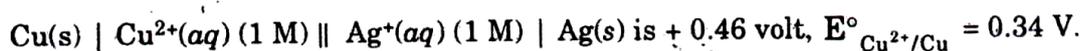
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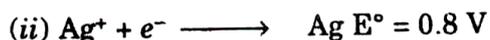
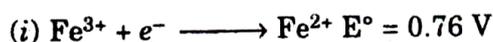
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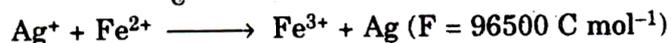


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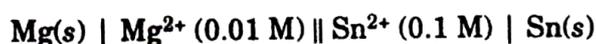


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