

KENDRIYA VIDYALAYA GARHARA

Session: 2016-17 Slip test 3 Class-XII Sc

Topic : Electrochemistry MM:25

1. Consider the reaction:



What is the quantity of electricity in coulombs needed to reduce 1 mol of $\text{Cr}_2\text{O}_7^{2-}$? 1

2. Write the electrode reaction that is taking place in lead storage cell when it is in use. 1

3. Define a fuel cell. Write the reactions that are taking place in hydrogen oxygen fuel cell. 2

4. Write the reaction taking place at electrodes in a galvanic cell made up of Ag and Ni and their electrolyte. 2

5. State Kohlrausch Law .How is this law useful to calculate degree of ionization. 2

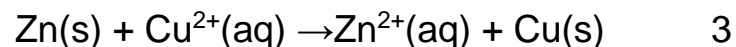
OR

How is corrosion an electrochemical phenomenon? Write the reactions involved.

6. Limiting molar conductivity for NaCl, HCl and CH_3COONa are 126.4, 425.9 and $91.0 \text{ cm}^2 \text{ mol}^{-1}$ respectively. Calculate Limiting molar conductivity for CH_3COOH 2

7. Define conductivity and molar conductivity for the solution of an electrolyte. Discuss their variation with concentration using graph. 3

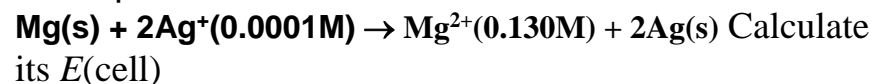
8. The standard electrode potential for Daniell cell is 1.1V. Calculate the standard Gibbs energy for the reaction:



9. Resistance of a conductivity cell filled with 0.1 mol L^{-1} KCl solution is 100 ohm. If the resistance of the same cell when filled with 0.02 mol L^{-1} KCl solution is 520 ohm, calculate the conductivity and molar conductivity of 0.02 mol L^{-1} KCl solution. The conductivity of 0.1 mol L^{-1} KCl solution is 1.29 S/m .

3

10. Represent the cell in which the following reaction takes place



if $E^\circ(\text{cell}) = 3.17 \text{ V}$. 3

11. A solution of $\text{Ni}(\text{NO}_3)_2$ is electrolysed between platinum electrodes using a current of 5 amperes for 20 minutes. What mass of Ni is deposited at the cathode? 3

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Session:2015-16 Slip test 3 class-XIISc Topic :
Electrochemistry MM:25

1. Can one store CuSO_4 solution in a zinc pot? Give reason. 1
2. Define specific conductivity. What is its unit? 1
3. How is molar conductivity related to specific conductivity? 1
4. What is SHE? How is it represented? 1
5. Write the reaction taking place at electrodes in a galvanic cell. 2
6. State Kohlrausch Law .How is this law useful to calculate degree of ionization. 2
7. Limiting molar conductivity for NaCl, HCl and CH_3COONa are 126.4, 425.9 and $91.0 \text{ cm}^2 \text{ mol}^{-1}$ respectively. Calculate Limiting molar conductivity for CH_3COOH 2
8. Define conductivity and molar conductivity for the solution of an electrolyte. Discuss their variation with concentration. 3
9. A solution of $\text{Ni}(\text{NO}_3)_2$ is electrolyses between platinum electrodes using a current of 5 ampere for 20 minutes what mass of Ni is deposited at the cathode? 3
10. Zinc rod is dipped in 0.1 M solution of ZnSO_4 . The salt is 95% dissociated at this dilution at 298K. Calculate the electrode potential. ($E^\circ_{\text{Zn}^{2+}/\text{Zn}} = -0.76\text{V}$) 3

11. Resistance of a conductivity cell filled with 0.1 mol L^{-1} KCl solution is 100 W. If the resistance of the same cell when filled with 0.02 mol L^{-1} KCl solution is 520 W, calculate the conductivity and molar conductivity of 0.02 mol L^{-1} KCl solution. The conductivity of 0.1 mol L^{-1} KCl solution is 1.29 S/m . 3
12. Represent the cell in which the following reaction takes place
 $\text{Mg(s)} + 2\text{Ag}^+(0.0001\text{M}) \rightarrow \text{Mg}^{2+}(0.130\text{M}) + 2\text{Ag(s)}$ Calculate its $E(\text{cell})$ if $E^\circ(\text{cell}) = 3.17 \text{ V}$. 3

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