DAV Public School, CRRC, Medical Road, Gaya

Sunday Test (21.07.2024)

Class : XII **Time** : 40 Min

Sub : Chemistry **F.M.** : 20

Section - A (2 X 5 = 10)

1. What are fuel cells? Write the electrode reactions of a fuel cell which uses the reaction of hydrogen with oxygen.
2. Solutions of two electrolytes A and B are diluted. The molar conductivity of B increases 1.5 times while that of A increases 25 times. Which of the two is a strong electrolyte?
3. A solution of Ni $(NO_3)_2$ was electrolysed between platinum electrodes using a current of 0.5 ampere for 20 minutes. What mass of Nickel is deposited at the cathode (atomic mass=58.7u)?
4. How much charge is required for the following reduction
   a. One mole of MnO_4 to Mn^{2+}?
   b. One mole of Al^{3+} to Al?
5. A current of 0.5 ampere flows through a metallic wire for 2 hours, then how many electrons would flow through the wire?

Section - B (5 X 2 = 10)

6. Calculate emf and G for the cell reaction at 298K
   Mg(s) l Mg^{2+}(0.0001M) || Cu^{2+}(.00001) l Cu (s)
   Given $E°Mg^{2+}/Mg$ = -2.36V, $E°Cu^{2+}/Cu$=0.34V, log 10^n=n
7. a. State Kohlrausch Law of independent Migration of ions. Write an expression for the molar conductivity of acetic acid at infinite dilution according to this law.
   b. Write short notes on limiting molar conductivity and Electrochemical series.