Electrochemistry

1. What are fuel cells ? Give one example.
2. Write the overall cell reaction for lead storage battery.
3. What is corrosion ?
4. Can we store $CuSO_4$ solution in an iron vessel ?
9. What is the chemical formula of rust ?
5. Write the names of electrodes used in a mercury cell.
6. Write the names of electrolyte used in a fuel cell.
7. Why a dry cell becomes dead after a long time even if it has not been used?
8. What is the basis of obtaining electrical energy in fuel cells ?
9. Give an example of a fuel cell.
10. Write Nernst equation for the following cell reaction :
Zn(s) | Zn^{2+}(aq) ll Cu^{2+}(aq) ! Cu("s)
11. (a) What is electrode potential ? How is the electrode potential of an electrode determined ? Explain.
(b) What is the effect of dilution on specific conductivity and molar conductivity ? Explain

Long answers

1. (a) Explain Kohlrausch's law of independent migration of ions. Mention one application of the law.
(b) With the help of a graph, explain why it is not easy to determine \ for a weak electrolyte by extrapolating the concentration us molar conductivity curve as for strong electrolytes ?
2. Predict the products of electrolysis in each of he following : (i) An aqueous solution of silver nitrate with silver electrodes.
3. Explain giving suitable reasons :
(i) Rusting of iron is quicker in saline water than in ordinary water.
(ii) Iron does not rust even if zinc coating is broken in a galvanised iron pipe.
4. What is the relationship between Gibbs free energy of the cell reaction in a