THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: (15x2=30)

(i) How does metallic conduction differ from electrolytic conduction?

(ii) Define reversible and irreversible cells, give examples.

(iii) *Define the terms conduction, specific conduction and specific resistance.*

(iv) Justify oxidation potential is a measure of tendency to gain electrons.

(v) Give application of fuel cells.

(vi) Explain hydrocarbon cells.

(vii) Compare molar conduction with equivalent conduction.

(viii) Give significance of cell constant.

(ix) Briefly explain electrode cell and concentration cells.

(x) Which type of electrodes can be used to determine pH of a solution?

(xi). Justify use of salt bridge to eliminate the liquid junction potential.

(xii) What is meant by liquid junction potential, give example?

(xiii) What is electrophoretic effect?

(xiv) Define electrode potential. Explain oxidation and reduction potential.

(xv) What is effect of dilution on molar and specific conduction?

Answer the following questions.

Q.2. (a) What are electrolyte concentration cells. How will you determine emf of concentration cells without transference.   (7)

(b) Discuss the effect of viscosity of the medium on the conductance of an electrolyte.   (3)

Q.3. (a) How would you determine the emf of cells with amalgam electrode?   (6)

(b)   Write down working of proton exchange membrane fuel cells.   (4)

Q.4. (a) Derive an expression for relating mean activity coefficient and ionic strength.   (7)

(b) Give postulates of Debye-Hückel limiting law.   (3)