

SCAS 410

- (c) *Coulometric analysis*: principles of coulometric analysis with constant current, coulometric analysis with controlled potential, applications of coulometric methods for the analysis of cations-As (III), Fe (II) and  $I^-$  and  $S^{2-}$  by using  $I_2$  liberations and  $Ce^{4+}$  liberation in solutions

#### Unit – IV Electro Analytical and Radio chemical methods of analysis - 2

- (a) *Ion Selective Electrodes*: reference electrodes - hydrogen electrode, calomel electrode, silver chloride electrode; indicator electrodes – hydrogen and glass electrodes, theory of membrane potentials and liquid junction potentials, types of ion selective electrodes, basic properties, potentials and construction, calibration of ion selective electrodes, ion selective electrodes with fixed membrane sites, silver, lead, cadmium, sulfide, fluoride, cyanide and glass electrodes, applications in the analysis of air and water pollutants, principles of liquid membrane, gas sensing and enzyme based electrode
- (b) *Radio chemical methods of analysis*: detection and measurement of radioactivity, introduction to radioactive tracers, applications of tracer technique, isotope dilution analysis - applications, activation analysis – application, advantages and disadvantages, radio carbon dating technique

#### Text Books:

1. Instrumental methods of analysis – H.H Willard, Meritt Jr. and J.A Dean
2. Principles of instrumental analysis – Skoog and West
1. Vogels Textbook of Quantitative Inorganic analysis – J. Basset, R.C Denney, G.H Jefferey and J.Madhan
2. Instrumental methods of analysis – B.K Sarma, Goel Publishing House, Meerut
3. Instrumental methods of Analysis – Chatwal and Anand
4. Instrumental methods of Analysis – Ewing

#### Reference Books:

W.Wendtlandt, Thermal Analysis, John.Wiley Sons, New York