

Department of Inorganic and Analytical Chemistry

M.Sc Final Chemistry

Syllabus for III rd Semester

Specialisation: *Analytical Chemistry*

Paper - I: Separation Methods – I

(Effective from 2008-09 Admitted batch)

Unit - I Chromatography - 1

Chromatography: classification of different chromatographic methods, methods of development-Elution development, Gradient elution development, displacement development, and frontal analysis.

Principles of chromatography, different migration, adsorption phenomena, partition, adsorption coefficient, retardation factor, retention time and volume, column capacity, temperature effects, partition isotherm.

Dynamics of chromatography-efficiency of chromatographic column, zone spreading, High Equivalent Theoretical Plate (HETP), Van Deemter equation, resolution, choice of column, length and flow velocity, qualitative and quantitative analysis.

Unit - II Chromatography - 2

- a) *Column chromatography (adsorption chromatography)*: principles, general aspects, adsorption isotherms, chromatographic media, nature of forces between adsorbent and solutes, eluents (mobile phase), column chromatography without detectors and liquid chromatography with detectors and applications.
- b) *Gel Exclusion chromatography or Gel filtration chromatography*: principles, properties of xerogels, apparatus and detectors, resolution of gel type, applications to organic compounds.
- c) *Capillary Electrophoresis* : Principle, Details of the Instrument, Applications to Inorganic and Organic compounds.