

Paper – II CHN-602(A) Analytical Chemistry

Unit : 1

- (i) Fundamental of spectroscopy
- (ii) Atomic spectroscopy : Atomic absorption & fluorescence spectroscopy- Introduction, sample admission techniques, Instrumentation-interferences- Analytical applications. IR, non-dispersive IR & FTIR-Fourier transform IR spectroscopy-principle, Instrumentation & applications.

Unit :2

Nuclear magnetic Resonance (NMR) :- The technique, the chemical shift, the fine structure - line shapes & rate processes, Application.

FT NMR Instrumentation, ^{13}C NMR, Basic principle, Experimental techniques for spectral assignment, Nuclear spin relaxation (Correlation & Spectral density function, dipole-dipole relaxation, spin rotation, chemical shift anisotropy, scalar -relation- electron nuclear relaxation , Nuclear overhauser effect) solid state ^{13}C NMR, Application in macromolecular & quantitative Analysis.

Unit :3

Molecular spectroscopy UV & visible : Principle theory, Choice of solvent, Instrumentation & applications.

Atomic emission spectroscopy : Classification, flame emission & inductively coupled plasma emissions spectroscopy - principle, theory & applications.

Atomic X- ray spectroscopy :- Production & properties of X - ray, X- ray absorbance, X-ray fluorescence & X-ray diffraction quantitative & Quantitative phase analysis.

Unit :4

Flame photometer, AAS & Plasma emission :

Flame photometry, Flame - emission - Flame photometry, Determination of Ca, Mg, K, Mn & Be

AAS:- Theory, Instrumentation, Doppler broadening, pressure broadening, self reversal broadening, Flame & Flameless AAS, Background absorption & correction