

PAPER- 405

(EL-B) EXPERIMENTAL TECHNIQUES AND INSTRUMENTATION - I

UNIT- I:

Nuclear Magnetic Resonance Spectroscopy:

Basic Principles, Nuclear magnetic energy levels, Magnetic resonance, Relaxation Processes, Continuous wave NMR, Pulsed NMR, Spectra and molecular structure, Chemical shifts, Spin-spin Coupling, Applications.

Electron Spin Resonance Spectroscopy:

ESR Spectrometer, ESR Spectra, Hyperfine interactions, g-factor, Applications.

Basic reference :

Instrumentation Methods of analysis, VIIth Edition, Willard, Meritt, Dean, Settle, CBS Pub. & distributors.

UNIT-II:

Instrumentation: Introduction to pH, Principle of pH-measurement, Electrodes for pH measurement (Glass, hydrogen and reference electrodes) - pH meter, stroboscope, hygrometer, conductivity (Electrical) meter, gas chromatograph, glucometer (blood glucose meter)

Basic reference : 2 to 5 from references given bellow

Other references:

- (1) Scanning Electron Microscopy: Ootley,
- (2) R.S.Khandpur, Handbook of Analytical Instruments, TMH
- (3) R.S.Khandapur, Handbook of biomedical Instrumentation, TMH
- (4) A.K.Sawhney, Electrical and electronic measurements and Instrumentation, Dhanpatrai and Sons.
- (5) Leslie Cromwell, Fred Weibell, Biomedical Instrumentation and measurements, PHI.