



- (d) Elution technique employed in HPTLC.
- (e) Write the principle and methods involved in Radio Immunoassay.
- (f) How will you identify and determine the separated components from the mixture by Thin Layer Chromatography ?
- (g) Define ORD and Octant rule. Write their applications with suitable examples.
- (h) Enumerate various detectors used in Gas Chromatography.
- (i) Explain Mc Lafferty Rearrangement.
- (j) Woodward's rule and its application.
- (k) Explain the fundamental vibrations of the molecules in IR spectrophotometry.
- (l) Write a brief account on the applications of Thermo Gravimetric Analysis (TGA).

2. Answer any *five* questions : 5×10=50

(I) (a) Discuss the principle and instrumentation of Nuclear Magnetic Resonance.

(b) Explain the techniques of decoupling interaction between C 13 NMR and H1 NMR.

(II) (a) Explain the working of mass spectroscopy.

(b) Explain the theory of U.V absorption and add a note on effect of auxochromes on Chromophores.

(III) (a) Discuss the principle of supercritical fluid chromatography.

(b) Explain the principle, instrumentation and pharmaceutical applications of DSC.

(IV) (a) State Bragg's law and discuss about the applications of X-ray diffraction method.

(b) Discuss the following and mention the merits

(i) Zone electrophoresis

(ii) Isoelectric focussing.

(V) With the help of a phase diagram, explain the concept of supercritical fluids. Describe the instrumentation of supercritical fluid chromatography.

(VI) With the help of neat diagram, explain the concept of powder X-ray diffraction and its application.