



- Notes :
1. All questions are compulsory.
 2. Draw neat, labeled diagrams wherever necessary.
 3. Diagrams and Chemical equation should be given wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.

- 1. Short note (Answer any ten) 10x2
=20**
- a) Define Radiotracer and enlist their techniques.
 - b) Define alkaloid with its types.
 - c) Principle of Paper Chromatography.
 - d) Application of HPTLC in herbal medicine.
 - e) Identification test of Quinoline Alkaloids.
 - f) Give Synonyms, Biological source, Chemical Constituent and uses of Vinca.
 - g) Give Synonyms, Biological source, Chemical Constituent and uses of Senna.
 - h) Application of spectroscopic techniques in Pharmacognosy.
 - i) Importance of natural products in discovery of drugs.
 - j) Principle of IR spectroscopy.
 - k) Note on choice of solvents.
- 2. Short Essay (Answer any five) 5x7
=35**
- a) Explain the difference between the preparative HPLC and Flash chromatography.
 - b) Explain protocol design for lead molecules from plants with examples.
 - c) Explain SCFE technique with advantages and disadvantages.
 - d) Note on tracer isotopes.
 - e) Note on chemical test of alkaloids.
 - f) Note on Ultrasound Assisted Extraction.
 - g) Methods of Fractionation.
- 3. Long Essay (Answer any two) 2x10
=20**
- a) Write the definition and principles of extraction and types of extracts. Describe various extraction techniques with principles, merits and demerits.
 - b) Discuss the role of herbs as a source of drugs in drug discovery process. Explain the selection and optimization of lead compounds.
 - c) Explain the biosynthesis, isolation and characterization of quinine and Glycyrrhizin.
