



- Notes :
1. Que. 1 is compulsory & Solve **any four** from Remaining.
 2. All questions carry equal marks.
 3. Diagrams and Chemical equation should be given wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.
 5. Discuss the reaction, mechanism wherever necessary.

1. Solve **any four** from the following. **16**
 - a) Development techniques in paper chromatography.
 - b) Application of TLC.
 - c) Sample introduction system in HPLC.
 - d) Pumps used in HPLC.
 - e) Principle & application of partition chromatography.
2. Explain in detail principle, instrumentation and working of HPLC. **16**
3. Explain in detail about Gas chromatography. **16**
4. Write stationary phases of liquid-liquid & liq. Solid chromatography. Explain in detail about principle of paper chromatography. **16**
5.
 - a) Explain in detail about chromatography and its application in pharmaceuticals. **10**
 - b) Define ion-exchange chromatography. Give its principle along with application. **6**
6.
 - a) Write the factors affecting the R_f value in paper chromatography. **8**
 - b) Give the criteria for the selection of column in column chromatography. **8**
7. Write a note on following **any four**. **16**
 - a) Principle and application of HPTLC.
 - b) Differentiate between HPLC and HPTLC.
 - c) Principle and application of paper chromatography.
 - d) Theory and application of gel chromatography.
 - e) Ion-exchange chromatography.
 - f) Define chromatography and classify it.
