**KNT/KW/16/6578**

**B.Pharm. (Seventh Semester) (C.B.S.) Examination**

**PHARMACEUTICAL ANALYSIS—III (Separation Techniques)**

**Paper—3 (7T3)**

Time : Three Hours] [Full Marks : 80

**Note :—** (1) Question No. **1** is compulsory.

(2) Attempt any **four** questions from the remaining.

(3) All questions carry equal marks.

(4) Draw neat labeled diagram wherever necessary.

(5) Assume suitable data wherever necessary.

1. Solve any **Five** of the following :

   (a) Define Retention factor, Retention volume and Retention time.

   (b) Enlist the adsorbent used in TLC.

   (c) Explain why column is heart in Gas Chromatography.

   (d) Explain the term adsorption chromatography and partition chromatography.

   (e) Define chromatography and give its classification.

   (f) Enlist the different types of paper chromatography.

   (g) Enlist the factors affecting in solvent extraction. 5×4=20

2. Write the principle, working, instrumentation and application of HPLC. 15

3. Write notes on any **three** of the following :

   (a) Frontal, displacement and elution analysis.

   (b) High performance thin layer chromatography.

   (c) Electrophoresis.

   (d) Types of column in Gas chromatography. 5×3=15

4. What do you mean by extraction ? Write in detail about countercurrent distribution. Explain about factors affecting extraction. 15

5. (a) Write in detail about Thin layer chromatography. 8

   (b) Write in detail about Ion-exchange chromatography. 7

6. Write principle and working in detail of different detectors used in Gas chromatography. 15

7. Write notes on any **three** of the following :

   (a) Column chromatography

   (b) Privatisation in Gas chromatography.

   (c) Principle and development techniques in Paper chromatography

   (d) Qualitative and Quantitative Application of Gas chromatography. 3×5=15