

23/11/10

Pharm. Anal. - IV
(2 Hours)Sem VII
[Total Marks : 40

- N.B. :** (1) Question No. 1 is **compulsory**.
 (2) Answer any **four** questions from remaining **six** questions.
 (3) **Draw neat**, labelled diagrams wherever **necessary**.
 (4) **Figures** to the **right** indicate **full** marks.

1. (a) Explain the following terms any **three** :- 6
 (i) Capacity factor
 (ii) Internal standard
 (iii) Gradient elution
 (iv) Two dimensional TLC.
 (b) Name the following any **two** :- 2
 (i) Two methods for quantitative analysis
 (ii) One detector for HPLC where simultaneous determinations at various wavelengths can be done
 (iii) Technique used for determination of residual solvents.
2. (a) With reference to the optimisation of column performance, explain - 4
 (i) HETP
 (ii) Resolution.
 (b) What is meant by Autosampler? Draw a diagram to show working of Rheodyne injector system in 'LOAD' and 'INJECT' position. 4
3. (a) Discuss the various columns used in HPLC. 4
 (b) What is meant by Differential Scanning Calorimetry (DSC)? Discuss the principle of DSC. Explain in detail any one application of DSC. 4
4. (a) With the help of a block diagram explain in brief the instrumentation for gas chromatography. 4
 (b) Explain the principle of Ion-pair chromatography. Discuss two applications of the same. 4
5. (a) What are the different kinds of sample that are encountered in pharmaceutical analysis. Discuss the various sampling tools. 4
 (b) What is meant by HPTLC? Explain the various advantages of HPTLC over TLC. 4
6. (a) Give the significance of analytical method validation. Explain the term - Precision. 4
 (b) From the data given below, determine the correlation coefficient between absorbance and concentration for drug C :- 4

Concentration ($\mu\text{g/ml}$)	Absorbance
2	0.213
4	0.408
6	0.618
8	0.816
10	0.995

7. Write short notes on any **two** :- 8
 (a) Van Deemter equation
 (b) Size exclusion chromatography
 (c) Thermogravimetry
 (d) Sampling plans.