

M.Sc. (Part-I) Semester-I (CBCS Scheme) Examination
PHARMACEUTICAL CHEMISTRY
GENERAL ANALYTICAL CHEMISTRY
Paper-1SA4

Time : Three Hours]

[Maximum Marks : 80

N.B.:— (1) All questions are compulsory and carry equal marks.

(2) Use of calculator is permitted.

UNIT—I

1. (a) Define and explain the following terms :
- (i) Mean
 - (ii) Median
 - (iii) Standard deviation. 6
- (b) What are the important points in reporting an analytical data ? 5
- (c) Write note on proficiency testing. 5

OR

- (p) Give a brief quantitative account of theory of sampling. 6
- (q) Write note on calibration and detection unit. 5
- (r) Calculate the standard deviation for the following data :
8.730, 8.719, 8.742, 8.751, 8.736 and 8.722. 5

UNIT—II

2. (a) Explain the titration curves for various acid-base titrations. 6
- (b) Explain redox titrations. Mention two examples of redox indicators. 5
- (c) What is meant by complexometric titration ? Explain with suitable example. 5

OR

- (p) Write brief note on :
- (i) Mohi's titration
 - (ii) Volhard's titration. 6
- (q) What is post-precipitation ? What is the remedy to avoid post-precipitation ? 5
- (r) What are metallochrome indicators ? Explain the principle of chelation of these indicators in complexometric titrations. 5

UNIT—III

3. (a) Explain solvent extraction and mention its application in analytical chemistry. 5

- (b) Write various steps of operations involved in solid phase extraction. 6
(c) Explain the use of synthetic ion exchange in separation. 5

OR

- (p) Write brief note on chetating ion exchange resin. 6
(q) Write applications of solid phase extraction method. 5
(r) Why multiple extraction is superior over single extraction ? Explain with suitable example. 5

UNIT—IV

4. (a) What is Chromatography ? What is the use of Rf value in chromatography ? What are the factors affecting Rf values ? 6
(b) Give the details of thin layer chromatographic technique for separation. In what respect it is superior over paper chromatography ? 5
(c) Explain the following terms :
(i) Plate theory
(ii) Rate theory of chromatography. 5

OR

- (p) Differentiate paper chromatography and column chromatography. 6
(q) Explain thin-layer chromatographic technique for separation. 5
(r) What is exclusion chromatography ? Explain with suitable example. 5

UNIT—V

5. (a) Explain the terms :
(i) Retention time
(ii) Retention volume
(iii) Retention ratio. 6
(b) Give the applications of HPLC. 5
(c) Draw well labelled diagram of Gas-liquid chromatography and discuss its applications. 5

OR

- (p) Describe the principles of the following gas chromatographic detectors :
(i) Thermal conductivity
(ii) Flame ionization
(iii) Electron capture. 6
(q) Explain the detectors used in HPLC. 5
(r) Write note on supercritical fluid chromatography. 5