



HS-M2011115

Seat No. _____

M. Pharm. (Sem. II) (CBCS) Examination

June / July - 2017

Modern Analytical Techniques - II

(Interdisciplinary : Paper - III) (Theory)

Time : 3 Hours]

[Total Marks : 80

- Instructions :**
- (1) Answer and tie up both the sections separately.
 - (2) Figure to the right indicates marks.
 - (3) Answer the three (03) questions from each section.
 - (4) Question one (O1) and question Five (05) are compulsory.
 - (5) Draw neat and clean diagrams as required.

SECTION - I

- 1 Explain the following term with suitable example : 14
(any seven)
- (a) Define: HETP and peak resolution.
 - (b) What is the role of chiral selector in chiral chromatography ?
 - (c) Which is the difference between TGA and DSC technique ?
 - (d) Comment: SFC is as fast as LC method.
 - (e) Give a Bragg's law equation.
 - (f) How ion exchange and ion pair chromatography are different ?
 - (g) What is CD and ORD ?
 - (h) Enumerate applications of enzyme immuno assay.
 - (i) How isoelectric focusing technique is useful in pharma analysis ?
 - (j) What is the difference between LC-MS and LC-MS/MS ?
- 2 Answer the following questions : 8
- (a) Define chromatography. Discuss various methods of separation with diagram. 8
 - (b) Discuss the importance of derivatization in chromatography with example. 5

- 3** Answer the following questions :
- (a) What is the difference between LC and HPLC ? **8**
 Draw a schematic diagram of HPLC and enumerate its pharmaceutical applications.
- (b) Write a detail note on HPTLC. **5**
- 4** Answer the following questions :
- (a) Define and classify thermal methods. Discuss heat flux DSC. **8**
- (b) Discuss the influence of experimental conditions in thermal methods. **5**

SECTION - II

- 5** Answer the following questions : (any two) **14**
- (a) Write a short note on affinity chromatography.
- (b) Discuss the principle and applications TGA.
- (c) Discuss the pharmaceutical applicability of optical rotary dispersion technique.
- 6** Answer the following questions :
- (a) What is the difference between x ray powder diffraction and single crystal x ray technique ? Discuss its role in solid state characterization. **8**
- (b) Discuss the Van Deemter equation in detail. **5**
- 7** Answer the following questions :
- (a) Discuss the principle of electrophoresis. Give detail account for zone electrophoresis. **8**
- (b) Write principle and application of RIA. **5**
- 8** Answer the following questions :
- (a) What do you mean by hyphenated analytical techniques ? Discuss the recent advancement in GC and LC techniques. **8**
- (b) Differentiate DTA and DSC. **5**