



**HE-014-003606**

Seat No. \_\_\_\_\_

**M. P. M. (Sem. VI) (CBCS) Examination**

**May / June - 2017**

**Pharmaceutical Analysis - IV**

**Faculty Code : 014**

**Subject Code : 003606**

Time : 3 Hours]

[Total Marks : 80

- Instructions :**
- (1) Answer and tie up both the sections separately.
  - (2) Attend any three questions out of four from each section.
  - (3) Figures to the right indicates marks.
  - (4) Question 1 (one) and Question 5 (five) are compulsory.
  - (5) Draw neat and clean diagrams as required.

**SECTION - I**

- 1 Answer the following : (Any Seven) 14**
- (1) What is the difference between LC and TLC?
  - (2) Enlist the Radio labelling techniques.
  - (3) What is the application of LC - FTIR?
  - (4) What is flash chromatography?
  - (5) What are the applications of GC - MS?
  - (6) What is UPLC?
  - (7) Differentiate:  $R_t$  and  $R_f$ ?
  - (8) Explain Van - Deemter equation.
  - (9) Draw the schematic diagram of gas chromatography instrumentation.
  - (10) Define: HETP and separation factor
- 2 Answer the following :**
- (1) Classify the Chromatographic methods, briefly explain RP - HPLC method. **7**
  - (2) Define Normal phase chromatography; discuss the comparison of HPLC and GC. **6**

- 3** Answer the following :
- (1) Briefly explain the principle of HPTLC, Discuss the advantage of HPTLC over HPLC. **7**
  - (2) Write a note on pharmaceutical Application of LC - MS/MS. **6**

- 4** Answer the following :
- (1) Discuss in detail: Interfaces of LC - MS **7**
  - (2) Explain principle, procedure, advantage, disadvantage and application of RIA **6**

### SECTION – II

- 5** Write a note on following : (Any Two) **14**
- (1) Interfaces of GC - MS.
  - (2) ELISA
  - (3) Affinity Chromatography

- 6** Answer the following :
- (1) Briefly explain; principle, Unit of radio-active decay, measurement of radioactivity and applications of radio nuclides. **7**
  - (2) Discuss ion exchange chromatography. **6**

- 7** Answer the following :
- (1) Define super critical fluid chromatography and discuss its Elements. **7**
  - (2) Describe different steps in HPTLC analysis. **6**

- 8** Answer the following :
- (1) Briefly write purpose/application/use of each hyphenation techniques given below in pharmaceutical field. **7**
    - (A) GC - FTIR
    - (B) LC -NMR
    - (C) CE - MS
    - (D) GC -AES
  - (2) Discuss: Chiral Chromatography. **6**