

R15

Code No: 6201AD

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

M. Pharmacy I Semester Examinations, June/July - 2018

MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES

(Pharmacology)

Time: 3 hours

Max.Marks:75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**PART - A**

5 × 5 Marks = 25

1. a) Explain in brief the various techniques used for the preparation of TLC plates. [5]
- b) Write a note on the applications of HPTLC in Pharmaceutical industry. [5]
- c) Discuss in detail the various factors influencing vibrational frequencies in IR spectroscopy. [5]
- d) Explain in detail the types of fission in mass spectrometry. [5]
- e) Discuss in detail spin-spin coupling process. [5]

**PART - B**

5 × 10 Marks = 50

2. Explain in detail the theory involved in the separation of components by paper chromatography. Add a note on various filter papers used and detection techniques in paper chromatography. [10]

OR

3. Define the terms Adsorption and Partition. Write a note on solid phase extraction techniques and their applications in pharmaceutical industry. [10]

4. Discuss in detail the instrumentation of HPLC with importance to the pumps and detectors used. [10]

OR

5. Write a note on the following:
  - a) Applications of Gas Chromatography.
  - b) Different types of columns used in Gas Chromatography. [10]

6. With a neat diagrammatic representation explain in detail the instrumentation for a double beam UV VIS spectrophotometer. [10]

OR

7. Write short notes on the following:
  - a) Types of molecular vibrations
  - b) Various sampling techniques in IR spectroscopy. [10]

8. Explain in detail the principle of mass spectrometry. [10]

OR

9. Discuss in detail the mass fragmentation rules. [10]

10. Write a note on the theory and instrumentation of NMR spectroscopy. [10]

OR

11. Discuss in detail the applications of  $^1\text{H}$  and  $^{13}\text{C}$  NMR techniques in pharmacy. [10]