

FACULTY OF PHARMACY**M. Pharmacy (Common to All) I-Semester (PCI) (Suppl.) Examination,****August 2018****Subject: Modern Pharmaceutical Analytical Techniques****Time: 3 Hrs****Max. Marks: 75****Note: Answer any five questions. All questions carry equal marks.**

- 1 (a) Discuss the instrumentation of double beam UV visible spectrophotometer with a neat labeled diagram. (10)
(b) What is Isobestic point? Explain with a labeled UV spectrum giving two examples. (5)
- 2 (a) Compare the instrumentation and working of a dispersive and Fourier transform IR spectrometers. Write the advantages and disadvantages of the two techniques. (10)
(b) Draw a schematic IR spectrum for any one compound and indicate the absorption wave number regions for any four functional groups in the compound. (5)
- 3 (a) Explain
(i) Chemical shift and factors influencing chemical shift. (6)
(ii) Spin-spin coupling and coupling constant. (6)
(b) Draw a schematic ¹H NMR spectrum for any one compound and explain the following:
(i) Chemical shift values (ii) Nature of protons (iii) Number of protons (3)
- 4 (a) Discuss the theory and principle of mass spectroscopy and explain the instrumentation and working of mass spectrometer with a neat labeled diagram. (10)
(b) What is fragmentation? Explain the following by taking a simple example
(i) Fragmentation peaks (ii) Molecular ion peak (iii) Base peak (5)
- 5 (a) Discuss the theory of HPLC. Describe the instrumentation and working of HPLC with a neat labeled diagram. (10)
(b) Draw a schematic HPLC chromatogram and explain
(i) Retention time (ii) Resolution (iii) Peak Asymmetry (5)
- 6 (a) Discuss the theory and principle of electrophoresis. Explain the method of capillary electrophoresis and its applications with examples. (12)
(b) What is isoelectric focusing? (3)
- 7 (a) Discuss the theory and principle of Gas chromatography. Explain the instrumentation and working of Gas chromatography and explain various stationary and mobile phases used in GC. (11)
(b) How non-volatile compounds can be analysed by GC. Explain the technique with few examples? (4)
- 8 Write a note on :
(a) Flame emission spectroscopy (6)
(b) Instrumentation and application of Fluorescence spectroscopy (9)
