

B.Pharm III Year I Semester (R15) Regular Examinations November 2017

APPLICATION OF SPECTROSCOPIC METHODS IN MOLECULAR STRUCTURE DETERMINATION

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) Explain calibration curve method in UV spectroscopy.
 - (b) Write the various components of Double beam UV-visible spectrophotometer.
 - (c) Write the principle in electrophoresis. What type of gel electrophoresis for proteins is possible?
 - (d) Give the factors affecting the electrophoresis techniques.
 - (e) Define chemical shift and coupling constant.
 - (f) Differentiate shielding and deshielding effects in NMR Spectroscopy.
 - (g) Explain sampling techniques for solids in IR Spectroscopy.
 - (h) Give the applications of Mass Spectrometer.
 - (i) Write the principle involved in Bioassay. Mention different types of Bioassays
 - (j) Define the following terms:
(i) Bathochromic shift. (ii) Hypsochromic shift. (iii) Hypochromic shift. (iv) Hyperchromic shift.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 Discuss limitations of Beer-Lambert law.

OR

- 3 Explain design and working principle of UV-Visible Spectrophotometer.

UNIT – II

- 4 What are the different types of electrophoresis? Explain horizontal and vertical gel electrophoresis.

OR

- 5 Explain pharmaceutical applications of electrophoresis.

UNIT – III

- 6 Explain instrumentation and applications of NMR spectroscopy.

OR

- 7 Write a note on ^{13}C -NMR spectroscopy.

UNIT – IV

- 8 Explain different Ionization methods in mass spectrometer.

OR

- 9 Write about various molecular vibrations that occur in IR spectroscopy. How do you calculate vibrational frequencies? Enumerate the factors influencing vibrational frequencies.

UNIT – V

- 10 Explain ATR-FTIR instrumentation and its applications in Bioassays and Bio-analysis.

OR

- 11 Define Bioassay. Explain pharmaceutical Bioassays and its applications.
