Seat No.: _____ Enrolment No. _____

PARUL UNIVERSITY

FACULY OF PHARMACY

M.Pharm. Winter 2017 - 18 Examination

Semester: 1 **Date: 08/01/2018**
Subject Code: MPH101T **Time: 10:00 am to 1:00 pm**
Subject Name: Modern Pharmaceutical Analytical Techniques **Total Marks: 75**

Instructions:
1. Figures to the right indicate maximum marks.
2. Make suitable assumptions wherever necessary.

Q.1 Essay Type Questions. (any 2 out of 3) (15 Marks Each) **(30)**

1. a) Define the terms with examples: Spin-spin coupling, base peak and Auxochrome.
   b) Write in detail about column chromatography?
   c) What is electrophoresis? Describe isoelectric focussing with its applications.
2. a) Describe chemical ionization technique with its advantages and disadvantages.
   b) Discuss the principle and application of HPLC.
   c) Write a short note on ELISA.
3. a) Describe the factors affecting the chemical shift.
   b) How do you differentiate the following pair of compounds using IR spectroscopy?
      i) Acetone and acetylene.
      ii) Acetaldehyde and methanol.
   c) Discuss the principle and technique of ion exchange chromatography.

Q.2 Short Essay Type Questions. (any 5 out of 6) (5 Marks Each) **(25)**

1. Define isotopic peak and add a note on Mc-Lafferty rearrangement.
2. Write the principle involved in the NMR spectroscopy.
3. Explain the Bragg's equation for diffraction of X-rays by crystals. How it can be used?
4. Describe the criteria for the choice of solvents and applications of UV-Visible spectroscopy.
5. State the different types of modes of molecular vibrations and explain them.
6. Discuss the principle involved in the spectroflourimetry and mention five factors affecting fluorescence.

Q.3 Short Answers. (2 Marks Each) **(20)**

1. Why does tetramethyl silane used as reference point in NMR?
2. Write the fragment pattern of butane and define the term molecular ion peak.
3. Write the applications of flame emission spectroscopy.
4. Mention the factors affecting electrophoresis.
5. Define spin-spin decoupling and diamagnetic anisotropy.
6. Explain with examples about chemical equivalence of protons in NMR.
7. Draw the Pascal scale and write briefly its significance.
8. Define finger print region. Mention its significance.
9. Write the applications of atomic absorbance spectroscopy.
10. Mention the ideal properties of carrier gas used in gas chromatography.