Seat No.: _____ Enrolment No. _____

PARUL UNIVERSITY

FACULY OF PHARMACY

M.Pharm Winter 2022 - 23 Examination

Semester: 1 **Date: 13/03/2023**
Subject Code: MPH101T **Time: 10:00am to 1:00pm**
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. Explain the molecular vibration involved in infrared spectroscopy.

   B. Define Chemical shift and write down the various factor affecting chemical shift.

2. A. Explain in detail about general rules of fragmentation in mass spectroscopy.

   B. Write in detail about Principle and instrumentation of ion exchange chromatography.

3. A. Write down the basic principle and instrumentation of Zone electrophoresis.

   B. Explain different methods of X-ray diffraction.

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

1. Define Quenching effect with its application.
2. Write a note on Spin-Spin coupling.
3. Explain Matrix-assisted laser desorption/ionization (MALDI) in mass spectrometry.
4. What are the different types of Paper chromatography?
5. Write a short note on ELISA.
6. Write a short note on RIA.

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

1. What are allowed and forbidden transitions in UV spectroscopy?
2. Define the following terms: 1. Flame emission spectroscopy 2. Phosphorescence
3. How shielding effect different from deshielding effect.
4. Explain brief outline principal of 13C – NMR technique.
5. What is APPI in MS technique?
6. Describe Molecular ion peak in Mass spectroscopy.
7. Enlist various Chromatographic techniques.
8. Write down the different stationary phases used in TLC.
9. Define Bioluminescence assay.
10. Write down the Bragg’s law and its equation.