

**PARUL UNIVERSITY**  
**FACULTY OF PHARMACY**  
**M. Pharm. Winter 2017 - 18 Examination**

**Semester: 1****Subject Code: MPL101T****Subject Name: Modern Pharmaceutical Analytical Techniques****Date: 08/01/2018****Time: 10:00 am to 1:00 pm****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. Explain principle, theory of NMR and factors affecting chemical shift in detail.
2. Discuss Principle, Instrumentation, Working conditions, factors affecting separation and applications of Gel electrophoresis & Iso electric focusing.
3. Short note on Different types of ionization techniques of MS.

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

1. Write a note on HPTLC.
2. Discuss instrumentation of Differential Thermal Analysis (DTA).
3. Draw a well labeled diagram of High Performance Liquid chromatography and discuss the components in brief.
4. Write a note on Instrumentation of fluorescence spectrophotometer.
5. Write a note on deviations from Beer's law.
6. Describe any two sampling techniques for IR spectroscopy.

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

1. Classify chromatographic techniques.
2. What is Affinity chromatography?
3. What is solvent cut-off in UV-Visible spectroscopy? Explain with example.
4. What is Fourier –Transform concept?
5. What is the advantage of Ultra High Performance Liquid Chromatography?
6. What are the applications of Atomic absorption spectroscopy?
7. Explain the principle of Flame emission spectroscopy.
8. State Bragg's law and give its formula.
9. Discuss applications of potentiometry
10. What is DSC? Enlist types of DSC.