



Roll No: \_\_\_\_\_

**MPHARM**  
**(SEM I) THEORY EXAMINATION 2025-26**  
**MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES**

TIME: 3 HRS

M.MARKS: 75

**Note:** 1. Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A**

1. Attempt *all* questions in brief.

10 x 2 = 20

a.	Define bathochromic shift.
b.	Differentiate between Stretching and Bending molecular vibration.
c.	Explain meta stable ions with suitable example.
d.	Define the term FAB
e.	Write the principle of HPTLC
f.	Write the Principle of UV spectroscopy.
g.	State the principle of Differential Thermal Analysis (DTA)
h.	Define bragg's law.
i.	State the principle of ELISA.
j.	What is Gelelectrophoresis?

**SECTION B**

2. Attempt any *two* parts of the following:

2 x 10 = 20

a.	Explain the principle, instrumentation and application of Mass spectroscopy.
b.	Explain the principle, instrumentation and application of NMR spectroscopy.
c.	Give a brief idea on DSC and TGA

**SECTION C**

3. Attempt any *five* parts of the following:

7 x 5 = 35

a.	Write a note on Molecular Vibration In IR Spectroscopy
b.	Demonstrate the principle and instrumentation of Atomic Absorption Spectroscopy.
c.	Discuss the principle and instrumentation of HPLC.
d.	Write a note on Thin Layer Chromatography.
e.	Explain the principle and instrumentation of gas chromatography.
f.	Describe the Instrumentation and Application of the Flame emission Spectroscopy.
g.	Write a note on Potentiometry.