INDIRA UNIVERSITY, PUNE

SET-3

SCHOOL OF PHARMACY- M. PHARM

Term End Examination (2025 Pattern) December – 2025 - Semester – I

Subject Name: Modern Pharmaceutical Analytical Techniques **Max. Marks: 75**
Subject Code: MPAT101T **Time: 3 Hours**

Instructions

- All questions are compulsory. Write two sections on separate answer sheets
- Neat diagram must be drawn wherever necessary.
- Figures to the right indicate full marks.

Q. NO		Questions	Marks	CO
Section : I				
Q.1	**Solve any ONE from the following**		**15**	
	a	Discuss the principle of UV Visible spectrophotometry and add note on detectors used in UV Visible spectrophotometer		**1**
	b	Explain in detail the principle of Infrared Spectroscopy.		**2**
Q.2	**Solve any FOUR from the following**		**20**	
	a	Give Bragg's Law equation and explain.		**8**
	b	Discuss in brief principle and applications of Flame Photometry		**4**
	c	Write a note on Capillary Electrophoresis		**7**
	d	Discuss in brief instrumentation of Spectrofluorimetry.		**3**
	e	What is Paper Electrophoresis? Give its applications.		**7**
	f	Write a note on -Radioimmunoassay		**8**
Section : II				
Q.3	**Solve any ONE from the following**		**15**	
	a	Explain in brief principle of NMR. What is chemical shift in NMR? Discuss factors affecting Chemical shift.		**6**

	b	Give classification of ionization sources in Mass spectrometry. Explain in detail EI, FAB, APCI and MALDI.		**5**
Q.4	**Solve any TWO from the following**		**15**	
	a	What is theoretical plate? Discuss Van Deemter equation and give its importance in chromatography		**7**
	b	Write a note on TLC		**7**
	C	Discuss detectors in Gas chromatography.		**7**
	d	Explain the ways for conversion of a non-first order NMR spectra to a first order NMR.		**6**
Q.5	**Solve any TWO from the following**		**10**	
	a	Give principle and applications of Affinity Chromatography.		**7**
	b	Explain different types of peaks in Mass spectra with examples.		**5**
	c	Write a note on paper chromatography.		**7**
	d	Elucidate the structure of compound from given data. Molecular Formula – C_3H_6O IR: 2950,1700 cm-1 PMR: δ (ppm) = 2.2 S (6H) MS: m/z = 15,43,58		**2,5,6**