Roll No:

BPHARM
(SEM VII) THEORY EXAMINATION 2025-26
INSTRUMENTAL METHODS OF ANALYSIS – THEORY

TIME: 3 HRS **M.MARKS: 75**

Note: 1. Attempt all Sections. If require any missing data: then choose suitably.
2. Any special paper specific instruction.

SECTION A

1. Attempt *all* questions in brief. **10 x 2 = 20**

a.	Define bathochromic shift with an example.
b.	Recall the significance of the functional group region in IR spectroscopy.
c.	Enlist the names of the detectors used in UV spectroscopy
d.	What do you mean by normal phase chromatography?
e.	What is the role of atomizer in atomic absorption spectroscopy?
f.	Recall the advantages, disadvantages of paper chromatography
g.	Define Rf values.
h.	Enlist the applications of capillary electrophoresis.
i.	What are the main advantages of HPLC.
j.	What is the **principle of affinity chromatography**?

SECTION B

2. Attempt any *two* parts of the following: **2 x 10 = 20**

a.	Describe the instrumentation of IR spectroscopy with a labelled diagram.
b.	Discuss the principle and the factors affecting gel electrophoresis.
c.	Explain the principle, instrumentation, and applications of affinity chromatography.

SECTION C

3. Attempt any *five* parts of the following: **7 x 5 = 35**

a.	Explain the Beer and Lambert's law with derivation.
b.	Discuss the various factors affecting vibrational frequencies in IR spectroscopy.
c.	Explain the principle, advantages, and disadvantages of thin-layer chromatography.
d.	Illustrate the instrumentation of HPLC.
e.	Explain the concepts of singlet, doublet, triplet electronic states, and the theory of fluorescence
f.	Discuss the instrumentation of gas chromatography.
g.	Describe the Ion exchange chromatography technique.