Ref. No.: Ex/BP701T/2025

B. PHARMACY FOURTH YEAR FIRST SEMESTER EXAM 2025

INSTRUMENTAL METHODS OF ANALYSIS

Time : Three hours Full Marks: 75

Answer any ***five questions*** by taking at ***least two from Group A*** and at ***least one from Group B and Group C.***

Group A

1. Discuss the principle and modes of vibrations in the case of IR spectroscopy. How do you prepare the solid, liquid, and gas samples for IR measurement? How do IR spectra identify different functional groups? [4+4+4+3
2. Write the theory behind fluorescence and phosphorescence. Discuss different factors affecting fluorescence. What is quenching? [6+6+3
3. Write the principle and limitation of flame photometry. Discuss in detail the interferences for its measurement. Describe the different burners used in flame photometry. [6+6+3
4. Write short notes on (a) the theory of UV spectroscopy (b) electronic transitions in UV spectroscopy (c) Detectors used in UV spectroscopy [5 x 3

Group B

5. a) What is the principle of GLC? [4
   b) Discuss the instrumentation of GLC with proper diagram. [11
6. Write short notes of the followings (**any three**) [3x5
   i) Thermal Conductivity Detector
   ii) Electron capture detector
   iii) Plate theory of GLC
   iv) Column of GLC

Group C

7. Write in details about procedure, advantages, disadvantages and uses of Thin layer chromatography. [15
8. Write in details about paper chromatography. [15
9. How will you separate mixture of compounds through column chromatography? Write details procedure including advantages. [15