

Ref. No.: Ex/BP701T/2024(S)

B. PHARMACY FOURTH YEAR FIRST SEMESTER SUPPLEMENTARY EXAM 2024  
INSTRUMENTAL METHODS OF ANALYSIS

Full Marks: 75

Answer any *five questions* by taking at least *one from each group* and at least *two from Group A*

**Group A**

1. Discuss the absorption laws and their deviations in UV-Visible spectroscopy. Write about different detectors used in UV-Visible spectroscopy. What are chromophore and auxochrome?  
[5+8+3]
2. Discuss the theory of IR spectroscopy. Explain the different modes of molecular vibrations in IR spectroscopy. How do you prepare sample for IR spectroscopy?  
[3+8+4]
3. Define fluorescence and phosphorescence? Explain detailed principle behind them. Write about different factors that can affect fluorescence  
[3+5+7]
4. Write short notes on (any three)  
[5x3]
  - (a) Quenching
  - (b) Electronic transitions in UV spectroscopy
  - (c) Application of UV spectroscopy
  - (d) Advantages and disadvantages of flame photometry

**Group B**

5. a) What is the principle of Gas Liquid Chromatography? [4]  
b) Draw the schematic diagram of GLC. Discuss different parts of GLC. [11]
6. Write short notes on (any three) [5x3=15]
  - i) Applications of GLC
  - ii) Thermal Conductivity Detector
  - iii) Flame Ionization Detector
  - iii) Plate theory of Chromatography

**Group C**

7. How will you separate mixture of compounds through column chromatography? Write details procedure. [15]
8. How Thin Layer Chromatography helps isolation of compounds? Write components and procedure for TLC. [15]