Ref. No.: Ex/BP701T/2024

B. PHARMACY FOURTH YEAR FIRST SEMESTER EXAM 2024

SUBJECT: INSTRUMENTAL METHODS OF ANALYSIS, Full Marks 75

Answer any five by taking at least one from each Group

Group A

1. Discuss the absorption laws and their deviations in UV spectroscopy. Write about different electronic transitions with examples in UV spectroscopy. Describe the principle of photomultiplier tube as detector. [7+5+3]
2. Describe the principle and Instrumentation in case of IR spectroscopy. Write about the techniques of sample preparation for IR spectroscopy. [10+5]
3. Discuss the theory behind Fluorescence and Phosphorescence. Write about the different factors affecting Fluorescence. What is quenching? [6+6+3]
4. Write short notes. [*Any three*] [5x3]
   (A) Principle of flame photometry
   (B) Identification of functional groups by IR spectroscopy
   (C) Internal conversion and external conversion in Fluorescence.
   (D) Light sources for UV-Visible spectroscopy

Group B

5. Write about the process, type of components, mechanism of column chromatography. [15]
6. (A) Explain thin layer chromatography including components, advantages and disadvantages. (B) Write a short note on absorption chromatography. [12+3]

Group C

7. (A) What is the principle of Gas Chromatography? (B) Discuss the instrumentation of Gas Liquid Chromatography. [4+11]
8. (A) What are the different types of detectors used in Gas Liquid Chromatography? [2]
   (B) Write short notes on (**any two**) [6.5x2]

   (i) Thermal Conductivity Detector

   (ii) Flame Ionization Detector

   (iii) Plate theory of Chromatography