

**SEMESTER EXAMINATION-2021**  
**CLASS – B. Pharm-VII SUBJECT: INSTRUMENTAL METHODS OF ANALYSIS (Theory)**  
**PAPER CODE: BP701T**

**Time: 3 hour**

**Max. Marks: 75**  
**Min. Pass: 40%**

**Note:** Question Paper is divided into two sections: **A and B**. Attempt both the sections as per given instructions.

**SECTION-A (SHORT ANSWER TYPE QUESTIONS)**

**Instructions:** Answer any five questions in about 150 words each. Each question carries six marks. (5 X 6 = 30 Marks)

Question-1: What is meant by Electromagnetic radiations? How do the wavelengths and frequencies of different types of electromagnetic radiations vary?

Question-2: Define the term 'chromophore'. How will you detect the presence of carbonyl group in aldehydes and ketones?

Question-3: Concepts of singlet, doublet and triplet electronic states in Fluorimetry

Question-4: Write a note on sample handling, factors affecting vibrations in IR Spectroscopy

Question-5: Define the following terms: (i) Bathochromic shift (ii) Hypso-chromic shift (iii) Hyperchromic effect.

Question-6: Enlist the advantages, disadvantages of TLC and its applications

Question-7: Classify Ion exchange chromatography on the basis of ion exchange resins. Give the factors affecting ion exchange mechanism.

Question-8: Enlist the factors affecting fluorescence in Fluorimetry

Question-9: Write a detailed note on applications of Flame Photometry

Question-10: Give the Principle and instrumentation involved in Nephelo-turbidometry

**SECTION-B (LONG ANSWER TYPE QUESTIONS)**

**Instructions:** Answer any FOUR questions in detail. Each question carries 10 marks. (4 X 10 = 40 Marks)

Question-1: (a) What are absorption laws? How is an ultraviolet spectrum plotted?

(b) Explain quantization of energy.

Question-2: Enumerate the detectors used in IR spectroscopy, also write a note on Thermocouple detectors

Question-3: Write advantages, disadvantages and applications of Paper chromatography

Question-4: Define R<sub>f</sub> values and Give the Principle, Methodology involved in thin layer chromatography

Question-5: Define Electrophoresis. Write the factors affecting electrophoretic mobility

Question-6: Describe the instrumentation and applications involved in affinity chromatography

Question-7: What is HPLC. Write a note on instrumentation of HPLC also give advantages and applications of this technique

Question-8: Describe the Woodward-Fieser rules for calculating the absorption maximum in dienes. Do these rules obey strictly on all dienes? If not why?

**Paper Code: BP701T**