

**B. PHARM.**  
**(VII SEMESTER) THEORY EXAMINATION 2022-23**  
**INSTRUMENTAL METHODS OF ANALYSIS**

*Time: 3 Hours*

*Total Marks: 75*

**Note:** Attempt all Sections.

**SECTION A**

**1. Attempt all questions in brief.**

**10 x 2 = 20**

- (a) Give principle of UV spectroscopy.
- (b) Describe quenching with examples.
- (c) Explain principle of Flame Photometry.
- (d) What are various methods for preparation of TLC plates?
- (e) Give significance of Fermi Resonance.
- (f) Define Chromophores with examples.
- (g) Give names of detectors used in HPLC.
- (h) Describe principle of Affinity Chromatography.
- (i) Explain applications of Nephelometry.
- (j) Discuss factors affecting Vibrational frequency in IR spectroscopy.

**SECTION B**

**2. Attempt any two parts of the following:**

**2 x 10 = 20**

- (a) Discuss theory involved in IR Spectroscopy. Explain instrumentation of IR spectrophotometer with applications.
- (b) Describe theory, principle, instrumentation and applications of Gas Chromatography.
- (c) Differentiate between Atomic absorption and atomic emission. Describe various interferences involved in Atomic Absorption Spectroscopy.

**SECTION C**

**3. Attempt any five parts of the following:**

**7 x 5 = 35**

- (a) Give theory of Gel Electrophoresis. Explain factors affecting electrophoretic mobility.
- (b) What is Finger Print region? Explain fundamental modes of vibrations in poly atomic molecules.
- (c) Explain applications of Spectrofluorometry.
- (d) Describe mechanism of ion exchange process in Ion Exchange Chromatography.
- (e) Explain Isocratic and Gradient Elution in HPLC.
- (f) Discuss significance of derivatisation in Gas Chromatography.
- (g) Describe spectral shifts and solvent effect on absorption spectra in UV Spectroscopy.