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BACHELOR OF PHARMACY (B. PHARM.) (CBCS-2019 COURSE)  
B.Pharm. Sem -VII : WINTER- 2022  
SUBJECT : INSTRUMENTAL METHODS OF ANALYSIS

Day : Tuesday

Time : 02:00 PM-05:00 PM

Date : 31-01-2023

W-20686-2022

Max. Marks : 75

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**N.B. :**

- 1) All questions are **COMPULSORY**.
  - 2) Figures to the right indicate **FULL** marks.
  - 3) Answer to both sections should be written in **SEPARATE** answer book.
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**SECTION - I**

**Q.1** Attempt **ALL** the questions. **(20)**

- a) Derive the equation for Beer's – Lambert's Law.
- b) Write the factors affecting IR vibrational frequencies.
- c) Name the burners used in Flame photometry.
- d) What are the factors affecting fluorescence in Fluorimetry?
- e) Explain the interferences in Atomic Absorption Spectroscopy.
- f) Define Bathochromic shift, Hypsochromic shift, Hyper-chromic shift and Wavelength.
- g) Give the applications of Column Chromatography.
- h) Classify chromatography based on Elution techniques.
- i) What are the methods for defining peak tailing?
- j) Explain the different methods used for preparation of chromatographic plate.

**Q.2** Attempt **ANY TWO** of the following. **(20)**

- a) Discuss in detail instrumentation of UV-Visible spectroscopy.
- b) Explain in detail factors affecting vibrations. Add a note on sources of radiation used in IR spectroscopy.
- c) Write the principle involved in Flame Photometry. Add a note on applications of Nepheloturbidometry.

**SECTION - II**

**Q.3** Attempt **ANY SEVEN** of the following. **(35)**

- a) What do you mean by Paper Chromatography? Write a various applications of Paper Chromatography.
- b) Write in detail about Gel electrophoresis.
- c) Explain in detail columns used in High Performance Liquid Chromatography.
- d) Compare between Thermal conductivity detector and Flame ionization detector.
- e) Give the applications of Ion Exchange Chromatography.
- f) Explain the principle and instrumentation of Gel Permeation Chromatography.
- g) Discuss principle and instrumentation of Affinity Chromatography.
- h) Write the various applications of High Performance Liquid Chromatography. Draw a well labelled block diagram of HPLC.
- i) Explain in detail carrier gases used in Gas Chromatography. Write a note on applications of Gas Chromatography.