M 173/015

Enrolment Number										

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Monsoon, 2023

M. Pharm (Pharmacology) Semester Examinations

MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES

Course Code: MPL101T

Full Marks – 75 **Time – 03 hours**

The figure in the margin indicates full marks for the questions.

A. Answer all : (50 words) **(10×2=20)**

1. Define Auxochrome with suitable examples.
2. Explain how IR absorption frequency is related with bond length?
3. Enlist some limitations of flame photometry.
4. Define coupling and coupling constant?
5. Define molecular ion peak.
6. Define rate theory of chromatography.
7. Explain theoretical plates.
8. Write about successive elution technique of chromatography.
9. Mention two detectors used in IR spectroscopy.
10. Mention the stretching frequency for carbonyl group (C=O) and amine (N-H).

B. Answer any seven : (100 words) **(7×5=35)**

1. Elaborate the interferences of Flame photometry.
2. Explain the principle of potentiometry.
3. Write a note on Atomic Absorption Spectroscopy.
4. Explain the working of Thermocouple in IR spectroscopy.
5. Explain the working of Barrier Layer Cell.
6. With figure explain the Jablonskis' theory for fluorescence and phosphorescence.
7. Write a note on TGA.
8. Explain the working of a time of flight type of Mass Spectrometer.
9. Write a short note on HPTLC.

C. Answer any two : (200 words) **(2×10=20)**

1. Explain the different vibrations and different types of sampling techniques of IR spectroscopy. **(5+5)**
2. Write about the different electronic transitions of UV Visible spectroscopy. With a neat diagram explain the different parts of a double beam UV Visible spectrophotometer. **(5+5)**
3. Write the principle of HPLC. With diagram explain the different parts and working of an HPLC instrument. **(3+7)**