

7/2/23

Total No. of printed pages = 2

MPC 101 T

Roll No. of candidate

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2023

M.Pharm. 1<sup>st</sup> Semester End-Term Examination

Pharmaceutical Chemistry

MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES

Full Marks – 75

Time – Three hours

The figures in the margin indicate full marks for the questions.

1. Answer *all* : (10 × 2 = 20)
  - (a) Explain the wave properties of Electromagnetic radiation and how it interacts with the matter?
  - (b) Why UV spectroscopy is called electronic spectroscopy? Explain suitably.
  - (c) Write a note on Chromophore and Auxochrome
  - (d) Differentiate absorption and emission spectroscopy with suitable example.
  - (e) Write about the solvent requirement in NMR Spectroscopy.
  - (f) Discuss on Iso electric focusing.
  - (g) Enlist the application of flame photometry.
  - (h) List out the applications of Atomic Absorption Spectroscopy.
  - (i) Write in brief Ion selective Electrodes and Application of potentiometry.
  - (j) Write short notes on affinity chromatography.
  
2. Answer any *seven* : (7 × 5 = 35)
  - (a) Write a note on Instrumental Deviations from Beer's Law.
  - (b) Explain the principle involved in fluorescence spectroscopy.
  - (c) Write a note on the modes of molecular vibrations.
  - (d) Discuss about the factors affecting chemical shift.
  - (e) Explain the sample handling techniques used in IR spectra.

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- (f) Write a note on  $^{13}\text{C}$ -NMR.
- (g) Explain about rotating crystal technique.
- (h) Discuss the principle and working of zone electrophoresis.
- (i) Give an account on principle and methodology of thermogravimetric analysis.
- (j) Explain the applications of potentiometry.

3. Answer any two : (2 × 10 = 20)

- (a) Explain in details about the construction and working of double beam UV-Visible spectroscopy and give its application.
- (b) Explain the principle and instrumentation of Nuclear magnetic spectroscopy.
- (c) Explain the principle of Mass spectrometry. With proper diagram explain the instrumentation of Mass Spectrometer.