

# Question Paper

Exam Date & Time: 26-Dec-2023 (10:00 AM - 01:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal Academy of Higher Education, Manipal MPharm Theory End-Semester Examinations.

**Modern Pharmaceutical Analytical Techniques [PQA-MIP101T - S2]**

**Marks: 75**

**Duration: 180 mins.**

### SECTION - A

**Answer all the questions.**

Answer the following (10 marks x 5 = 50 marks)

- 1) Explain the applications of UV-Visible spectroscopy (10)
- 2) Explain the solid, liquid and gas sample handling in IR Spectroscopy (10)
- 3) Explain the instrumentation of NMR in detail (10)
- 4) Explain any one ionizer used in Mass spectrometer in detail (10)
- 5) Explain the working principle of HPTLC in detail with the help of neatly labelled diagram and write applications of HPTLC (10)

### SECTION - B

**Answer all the questions.**

Answer the following (5 marks x 5 = 25 marks)

- 6) Explain the factors affecting paper chromatography (5)
- 7) Explain DSC in detail (5)
- 8) Explain the zero, first and second derivative plots to locate the equivalence point in potentiometric titrations. (5)
- 9) Write the principle and applications of continuous paper electrophoresis. (5)
- 10) Derive an expression for Bragg's law. List the applications of X-ray crystallography. (3+2 marks) (5)

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