



**MODERN PHARMACEUTICAL ANALYSIS**

(RS2 & RS3)

**Q.P. CODE : 9201**

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

**LONG ESSAY (Answer any TWO)**

**2 X 20 = 40 Marks**

1. Describe in detail about pumps and detectors for High Performance Liquid Chromatography. Also, detail about packed and open tubular columns used in gas Chromatography.
2. Explain the general rules for fragmentation patterns for mass spectrometry with examples. Also, discuss advances made in the technique with special reference to GC-MS.
3. How you will interpret Infrared Spectrum of the organic molecules? Explain on special emphasis on functional groups. Add a note on instrumentation for FTIR.

**SHORT ESSAY (Answer any FIVE)**

**5 X 10 = 50 Marks**

4. When you will use HPTLC as a technique for analysis? Describe in detail various steps in HPTLC.
5. Derive an equation for Bragg's law and write a note on Miller indices with suitable examples.
6. Explain ICMR and CPCSEA guidelines for animal and human experimentation.
7. Give an account of instrumentation of UV-Visible spectroscopy.
8. Outline the technique of FT-NMR with reference to  $^{13}\text{C}$  NMR. Also, discuss average time domain and frequency domain signals, nuclear overhauser enhancement of  $^{13}\text{C}$  NMR spectra.
9. Discuss circular dichroism and its relation with Optical Rotatory Dispersion.

**SHORT NOTES**

**2 X 5 = 10 Marks**

10. Chi-square test
11. Moving boundary electrophoresis with emphasis on paper electrophoresis

\* \* \* \* \*