

**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. Draw a schematic diagram and explain various components of double beam UV-spectrophotometer. Explain any two methods for simultaneous estimation of multi component sample by UV-spectrophotometry.
2. Give a brief outline of FTIR-instrumentation and sample preparation. Discuss interpretation of functional groups of organic molecules.
3. Discuss different types of Mass fragmentations in Mass spectrometry with examples. Write in detail the construction and working of quadrupole mass spectrometer.

**SHORT ESSAY (Answer any FIVE)****5 X 10 = 50 Marks**

4. Explain (a) Columns used in GC (b) Selection of mobile phase in HPLC.
5. Derive an equation for Bragg's law and add a note on Bravais lattices.
6. Explain briefly about the following:
  - a. Cotton effect curves
  - b. Octant rule
7. Write a note on signals multiplicity phenomenon in high resolution NMR.
8. What are the factors that affect the migration of ions in electrophoresis?
9. Explain the development and preparation techniques and applications of paper and TLC chromatography.

**SHORT NOTES****2 X 5 = 10 Marks**

10. Explain briefly about the importance of statistical analysis.
11. Write a short note on  $^1\text{H}$  NMR and  $^{13}\text{C}$  NMR and its importance.

\*\*\*\*\*