

**Modern Pharmaceutical Analysis****(Revised Scheme 4)****Q.P. CODE: 9336**

Your answers should be specific to the questions asked.

Draw neat, labeled diagrams wherever necessary. Answer any ten questions.

**LONG ESSAY (Answer any TEN)****10 X 10 = 100 Marks**

1. Discuss principle and instrumentation of IR-spectroscopy.
2. Write a note on: a) Nuclear overhauser enhancement b) Coupling constant.
3. What is Beer's law? Write its mathematical expression. Explain the reasons for deviation of Beer's law.
4. Explain briefly about the importance of statistical analysis.
5. Explain the principle involved in chemical ionization. Write its merit and demerits. Explain the working of Quadrupole and Ion-trap mass analyser.
6. Give an account on the theory and principle of NMR spectroscopy. Emphasize on chemical shift due to inductive effect and anisotropic effect. Explain briefly the NMR instrument.
7. Explain the isoelectric focusing technique in electrophoresis and mention its applications. Explain factors that affect the migration of ions in electrophoresis.
8. Write the principle of differential scanning calorimeter. What factors are responsible for affecting DSC results and write the applications of DSC.
9. What is van-DeMeyer equation? Explain the variables involved in it. Discuss the instrumentation of HPLC with special reference to detectors.
10. Explain the functions of various units of a gas chromatograph with emphasis on carrier gases, columns and detectors.
11. What is IR Spectroscopy? Enumerate various factors which effect the vibration frequency in IR Spectroscopy.
12. Explain the principle of chromatography. Write the difference between HPTLC and TLC.

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