

**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 the factors which affect the structural and stereo chemical features for absorption shift of conjugated dienes in UV-spectroscopy.
2. Explain the general rules for fragmentation patterns for mass spectrometry with suitable examples.
3. Briefly outline the molecular vibrations in IR spectroscopy. What is "Fermi resonance"? Explain the factors affecting vibrational frequency in IR Spectroscopy.
4. Explain briefly various ionization techniques used in mass spectrometry.
5. Explain ICMR and CPCSEA guidelines for animal and human experimentation.
6. What is thermogravimetric analysis? Discuss the instrumentation and applications of thermogravimetric analysis.
7. Define and classify chromatographic methods based on mechanism of separation.
8. Explain Woodward-Feischer rules for calculating the absorption wavelength for dienes and  $\alpha$ ,  $\beta$  unsaturated ketones with examples.
9. Explain the interpretation of any three organic compounds by IR,  $^1\text{H}$ -NMR and mass spectroscopy.
10. Explain columns used and selection of liquids stationary phase in gas chromatography.
11. a) Explain Mc Lafferty rearrangement seen in mass spectroscopy.  
b) Explain Retro-Diel's reaction with example.
12. Define electrophoresis. Classify and explain in detail Zone electrophoresis.

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