

**MODERN PHARMACEUTICAL ANALYSIS
(OS & RS)**

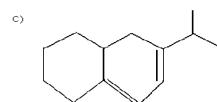
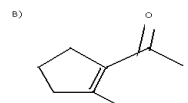
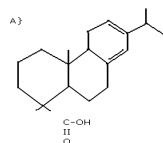
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Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary. Answer **FOUR** questions

LONG ESSAYS (ANSWER ANY FOUR)

4 X 25 = 100 Marks

- Discuss various ionization techniques in mass spectroscopy and their specific applications.
 - Explain how mass spectroscopy useful in to derive molecular weight and molecular formula of organic compounds.
 - Write a note on nitrogen rule and ring rule.
- Explain the theoretical basis of proton NMR spectroscopy. Write in brief about shielding and deshielding.
 - What is, meant by double resonance in NMR and suitable example?
 - Deduce the structure of the compound using following data:
Mol: formula: C_7H_8O
IR peaks: 3350 broad, 3050, 2980, 1600, 1525, 1450, 1215 cm^{-1}
Mass spectra peak: 108, 107, 91, 77
H-NMR (δ): 3.8 (2H, singlet), 4.3 (1H, singlet), 7.2 (5H, multiplet)
- Derive Beer's and Lambert's law.
 - Explain different types of electronic transitions observed in the organic molecules.
 - Predict the approximate λ_{max} for the following compounds and justify your answer (**Any two**)



- Write a note on any **FIVE** only:
 - Fermi resonance
 - Multicomponent drug analysis
 - FAB mass spectrophotometer
 - Circular dichroism
 - Factors affecting the fluorescence
 - Atomic absorption spectroscopy
- Write the differences between TLC and HPTLC.
 - Explain the principle of continuous electrophoresis.
 - Write a note on pre column and post column - derivatisation methods in GC and HPLC.
- Explain, how X-Rays are produced.
 - Write a note on Bragg's law, X-ray powder and rotating crystal method.

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