Roll No. | | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 06

M.Pharmacy (Pharmaceutical Chemistry) (Sem.–2)

ADVANCED SPECTRAL ANALYSIS

Subject Code : MPC-201

M.Code : 74955

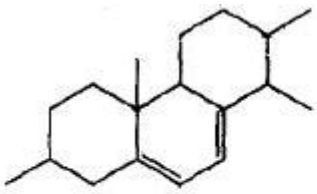
Date of Examination : 04-07-22

Time : 3 Hrs. **Max. Marks : 75**

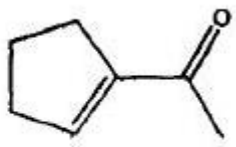
INSTRUCTIONS TO CANDIDATES :

1. **Attempt any FIVE questions.**
2. **Each question carries FIFTEEN marks.**

1. a. Use Woodward rules to calculate γ_{max} for following compounds :



A



B

b. Discuss the principal bands in the 2000-1500 cm^{-1} region observed in IR spectroscopy.

c. By citing suitable examples, explain the influence of H-bonding on IR absorption band.

2. a. Predict the multiplicities of the signals in ^{1}H-NMR spectra of

A. Ethyl acetate

B. Ethyl alcohol Isopropyl methyl ether

b. What is HETCOR technique in NMR? Discuss the signal obtained in HETCOR spectrum of 2-Nitropropane.

3. a. By citing suitable example, explain Retro Diels-Alder fragmentation in Mass spectrometry.

   b. What is molecular ion peak? Discuss its importance in interpretation of Mass spectrum.

   c. Discuss the EI Mass spectrum of isobutene.

4. a. Give schematic diagram of an SFC apparatus.

   b. Describe pharmaceutical applications of HPTLC.

   c. Explain the principle of LC-FTIR.

5. a. Describe principle and applications of DSC.

   b. What is the principle of Raman spectroscopy? Compare it with IR.

6. a. Explain the principle and describe the procedure for radioimmune assay of digitalis.

   b. By giving a labeled schematic diagram, explain principle of a direct competitive enzyme immunoassay (ELISA) with photometric detection.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.