

Roll No.

Total No. of Pages : 01

Total No. of Questions : 06

M.Pharma(Pharmaceutical Chemistry) (2017 & Onwards) (Sem.-2)

ADVANCED SPECTRAL ANALYSIS

Subject Code : MPC-201T

Paper ID : [74955]

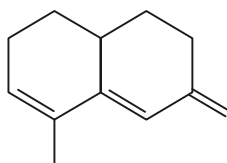
Time : 3 Hrs.

Max. Marks : 75

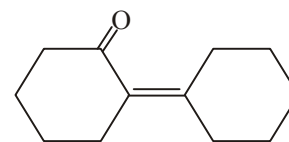
INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions out of SIX questions.
2. Each question carries FIFTEEN marks.

I a. Use Woodward rules to calculate λ_{\max} for following compounds: (5)



A



B

- b. Discuss fundamental vibrations in the 4000-2500 cm^{-1} region in IR spectroscopy. (5)
- c. Give comparative analysis of carbonyl stretching in IR spectrum for various carboxylic acid derivatives. (5)
- II a. Predict the multiplicities of the signals in ^1H -NMR spectra of following compounds: (7.5)
 - A. 1-Nitropropane
 - B. Isopropyl methyl ether
- b. What is COSY technique in NMR? Discuss the signal obtained in COSY spectrum of 2-Nitropropane. (7.5)
- III a. By citing suitable example, describe McLafferty rearrangement in Mass spectrometry. (5)
- b. What are isotopic peaks? Discuss their importance in interpretation of Mass spectrum. (5)
- c. Discuss Mass spectrum of butane. (5)
- IV a. Describe construction of LC-MS. (5)
- b. Describe applications of LC-NMR. (5)
- V a. Give schematic diagram of a classical DTA apparatus. (5)
- b. Enlist various processes that can be studied by DTA and DSC. (5)
- c. Discuss the factors affecting a TGA Curve. (5)
- VI a. Explain the principle and describe the procedure for radioimmune assay of insulin. (7.5)
- b. Explain the principle of an indirect competitive enzyme immunoassay (ELISA) using a labeled schematic diagram. (7.5)