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Total No. of Pages : 01

Total No. of Questions : 08

M.Sc. (Ph. Chem) (Sem.-1)
SPECTRAL TECHNIQUES
Subject Code : MSPC-105
Paper ID : [E0268]

Time : 3 Hrs.

Max. Marks : 80

INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries SIXTEEN marks.

- Q.1. (a) Discuss Mc-Lafferty rearrangements with examples. (6)
(b) What is Chemical shift? Discuss various factors that affect chemical shift. (10)
- Q.2. (a) Draw a sketch of optics of a double beam UV spectrophotometer. (8)
(b) Applications of GC-MS hyphenated technique in pharmaceutical field. (8)
- Q.3. Write an elaborative note on the principles of compleximetric titrations and methods using EDTA (16)
- Q.4. (a) Explain Woodward-Fieser rule. (4)
(b) Discuss briefly the importance of isotope peaks in MS. (4)
(c) What are bathochromic and hypsochromic shifts? Explain with example. (4)
(d) Why symmetric structure of CO₂ is IR inactive? (4)
- Q.5. Explain the principles, differences and application of COSY, TOCSY, NOESY and HECTOR techniques. (16)
- Q.6. (a) Discuss various detectors used in IR spectroscopy. (8)
(b) Explain various factors effecting coupling constant. (8)
- Q.7. (a) Discuss various sources of radiations in UV spectrophotometer. (8)
(b) Write a note on applications of LC-NMR in Pharmaceutical industry. (8)
- Q.8. Write a note on :
(a) Finger print region of IR spectroscopy. (10)
(b) Hard and Soft ionizing sources in MS. (6)