

A-0570

Total Pages : 3

Roll No.

MCH-608

M.Sc. CHEMISTRY (MSCCH)

(Heterocyclic Compounds and Spectroscopy-III)

4th Semester Examination, Session December 2024

Time : 2:00 Hrs.

Max. Marks : 35

Note :- This paper is of Thirty Five (35) marks divided into Two (02) Sections 'A' and 'B'. Attempt the questions contained in these Sections according to the detailed instructions given therein. Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

Section-A

Long Answer Type Questions $2 \times 9\frac{1}{2} = 19$

Note :- Section 'A' contains Five (05) Long-answer type questions of Nine and Half ($9\frac{1}{2}$) marks each. Learners are required to answer any *two* (02) questions only.

A-570/MCH-608 (1)

P.T.O.

1. Discuss the synthesis and reactions of Oxiranes.
2. Discuss the synthesis and reactions of Pyrimidines.
3. Write short notes on any three of the following :
 - (a) Nuclear Overhauser Effect (NOE)
 - (b) Chemical Shift
 - (c) Shift reagents
 - (d) Fischer indole synthesis
4. Explain the classical theory of Raman Spectroscopy.
5. Write a note on applying ORD and CD to structural and stereochemical problems.

Section-B

Short Answer Type Questions 4×4=16

Note :- Section 'B' contains Eight (08) Short-answer type questions of Four (04) marks each. Learners are required to answer any *four* (04) questions only.

1. What is 2D-NMR spectroscopy ? Differentiate between COSY and HETCOR.
2. Discuss the cotton effect.

3. Discuss the advantages and disadvantages of ^{13}C NMR.
4. Discuss the chemical properties of purine and xanthine bases.
5. Write a short note on the Continuous wave mode method recording of C-13 NMR.
6. How many signals would you see in 1, 4-dimethylbenzene ? Justify your answer with a proper explanation.
7. Discuss the physiological activity of α -pyrone.
8. Write note on synthesis and properties of imidazole.
