

K-397

Total Pages : 4

Roll No.

MCH-502

ORGANIC CHEMISTRY-I

M.Sc. Chemistry (MSCCH)

1st Semester Examination, 2023 (Dec.)

Time : 2 Hours]

[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)

Note : Section 'A' contains Five (05) long answer type questions of Nine and Half (9½) marks each. Learners are required to answer any Two (02) questions only.

(2×9½=19)

1. Discuss different type of symmetry elements with suitable examples. How symmetry elements affect optical isomerism?
2. Explain the mechanism of SN^1 and SN^2 reactions and discuss their stereochemistry with suitable examples.
3. Discuss any *two* of the following :
 - (a) Sharpless Asymmetric Epoxidation
 - (b) Stereochemistry of spiranes
 - (c) Catalytic Hydrogenation
4. Write explanatory notes on any *three* of the following :
 - (a) Hydroxylation of alkenes.
 - (b) Aliphatic diazonium coupling.
 - (c) Differentiate between enantiomers and diastereomers.
 - (d) Stereospecific and Stereoselective reactions.
5. Discuss absolute configuration, how these are used for assigning R and S Configuration? Explain with suitable examples.

SECTION-B
(Short Answer Type Questions)

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. (4×4=16)

1. How can structure of substrate affect the reactivity of aromatic nucleophilic substitution reactions?
2. Explain why ethoxymethyl chloride (C_3H_7ClO) reacts with nucleophiles 10^6 times faster than 1-chlorobutane (C_4H_9Cl)?
3. What product would be formed from the SN^2 reaction of (R)-2 bromobutane (C_4H_9Br) and hydroxide ion? Explain with mechanism.
4. Discuss optical activity due to chiral plane.
5. Discuss the mechanism of Elimination-addition(benzyne) reaction.
6. Alkyl halides with ethanolic KCN solution mainly produce cyanides whereas with AgCN, isocyanides are the main products. Explain.

7. Discuss theoretical explanation of Markovnikov rule.
 8. Discuss Von Richter rearrangement.
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