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Total Pages : 5

Roll No.

MSCCH-606

Organic Synthesis

M.Sc. Chemistry(MSCCH)

4th Semester Examination, 2023 (June)

Time : 2 Hours]

Max. Marks : 70

Note : This paper is of Seventy (70) 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 answer to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

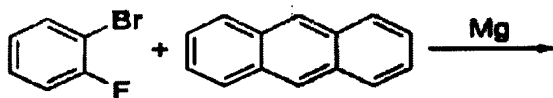
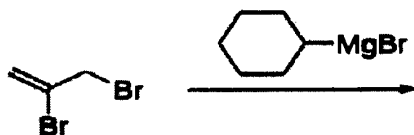
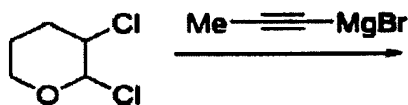
SECTION–A

(Long Answer Type Questions)

Note : Section 'A' contains Five (05) long answer type questions of Nineteen (19) marks each. Learners are required to answer any Two (02) questions only.

(2×19=38)

1. (a) Complete the following reactions :



- (b) What is the difference in the stereochemistry of product during the Prevost and Woodward oxidation reaction?
2. (a) Explain why trifluoroacetic acid is used as an effective reagent in place of peracetic acid during the epoxidation of alkenes.
- (b) Define the reactivity order of carboxylic acid and its derivatives toward the reduction reactions?

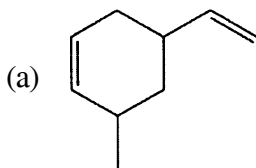
3. What are Organometallic compounds ? How they are classified ? Write any two method to prepare Li, Mg, Zn organometallic compound ?
4. Which reducing agent causes the selective reduction of alkynes into cis and Trans alkenes Define these reactions with their mechanism?
5. (a) Define Birch reduction is used for the partial reduction of aromatic hydrocarbons with the help of suitable mechanism.
(b) How Carboxylic acids are reduced into the primary alcohols by using lithium aluminium hydride with mechanism?

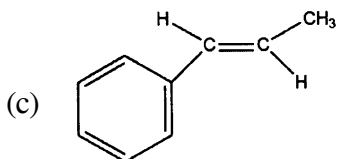
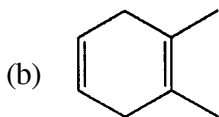
SECTION-B

(Short Answer Type Questions)

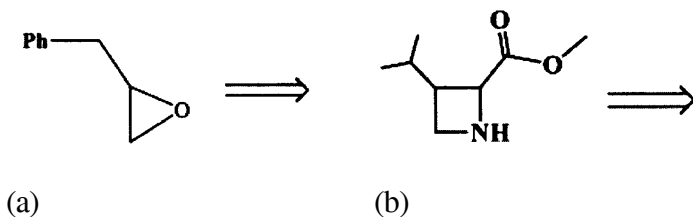
Note : Section 'B' contains Eight (08) short answer type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only. (4×8=32)

1. Give the name of mono epoxidation product obtained by the reaction of peracids with the following compounds.





2. Explain the following terms with suitable examples :
- Synthons.
 - Synthetic equivalent.
3. Why NaBH_4 behave as a better reducing agent in compare to the LiAlH_4 during the reduction of carbonyl compounds?
4. (a) What is FGI? Why there is need of FGI in case of few amines?
- (b) What is the importance of order of event in the retrosynthesis?
5. Show the disconnection approach for the following :



6. Discuss the mechanism of protection and deprotection of alcohols as trimethyl ethers?
 7. Define the pyramidal inversion and ring inversion in piperidine.
 8. Give the Mechanism of the following Reaction :
 - (a) Clemenson Reduction.
 - (b) Wolf-Kishner Reduction.
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