A–0416

Total Pages : 5 **Roll No. .....**

MSCCH-606

M.SC. CHEMISTRY (MSCCH)

(Organic Synthesis)

Examination, June 2025

Time : 2:00 Hrs. 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 answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

Section–A

Long Answer Type Questions 2×19=38

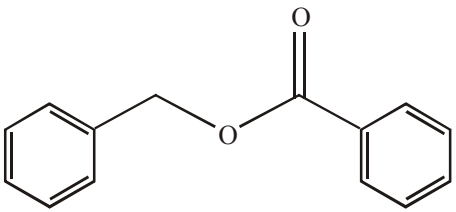
***Note* :–** Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any *two* (02) questions only.

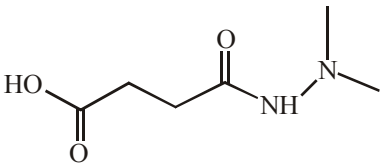
1. (a) Explain why trifluoroacetic acid is used as an effective reagent in place of peracetic acid during the epoxidation of alkenes.

   (b) Define the reactivity order of carboxylic acid and its derivatives toward the reduction reactions ?

2. (a) Explain the Synthons, Synthestic equivalent with suitable examples.

   (b) Show the Disconnection approach for the following molecules; represent synthons and respective synthetic equivalents and forward direction reaction.

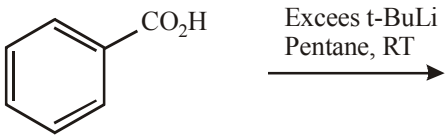
(a) 

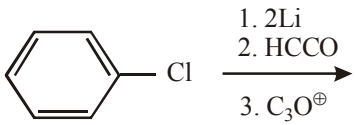
(b) 

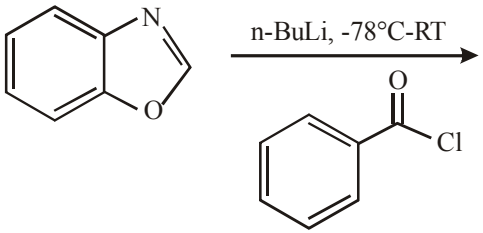
3. What are Organometallic compounds ? How they are classified ? Write any two method to prepare Li, Zn organometallic compound ?

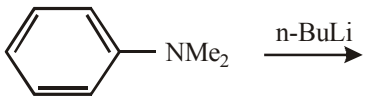
4. Which the selective reduction of alkynes into cis and Trans alkenes ? Define these reactions with suitable mechanism ?

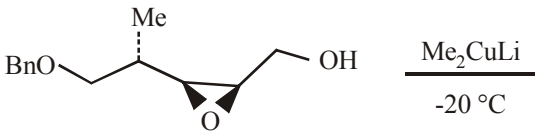
5. Complete the following Reactions :











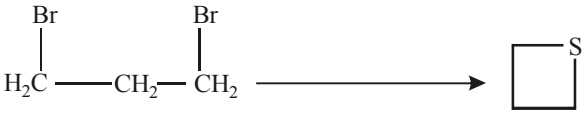
Section–B

Short Answer Type Questions 4×8=32

***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.

1. Write the mechanism of sharpless asymmetric epoxidation.
2. Why $NaBH_4$ behave as a better reducing agent in compare to the $LiAlH_4$ during the reduction of carbonyl compounds ?
3. Discuss the Functional group interconversion (FGI) by giving the suitable examples.
4. Write a detail note on the process of retrosynthesis with example ?
5. Write the mechanism of Clemenson reduction.
6. How will you done the following conversions :

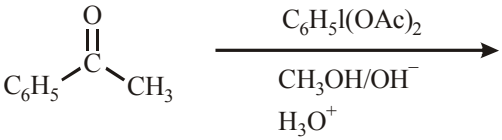
(a) 

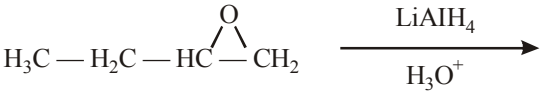
(b) 

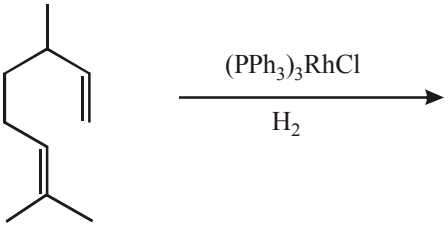
7. What is protecting group ? How alcohols can be protected ?

8. Complete the following reactions :

(i) 

(ii) 

(iii) 

(iv) 

****