A–879

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

MSCCH-606

M.Sc. CHEMISTRY (MSCCH)

(Organic Synthesis)

4th Semester Examination, 2024 (June)

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. What are the organomagnesium and organolithium reagent ? Write reaction mechanism of necleophilic addtion reaction with carbonyl compounds.

2. Gives the reaction product and mechanism of the hydroxylation of alkene with the following reagents

   (a) $KMnO_4$

   (b) OsO_4

3. Give the mechanism of any *two* from the following reactions :

   (a) Swern oxidation

   (b) Baeyer Villiger oxidation reaction

   (c) Wilkinson's catalyst

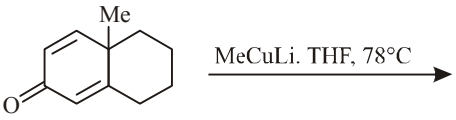
4. Explain the following terms with suitable examples

   (a) Synthons

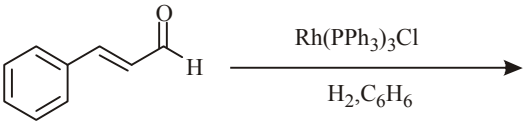
   (b) Synthetic equivalent

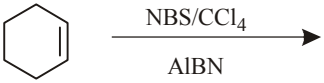
   (c) Retrosynthesis

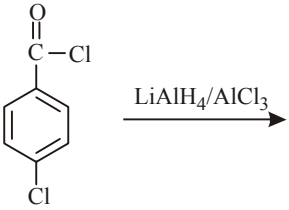
5. Give the product of the following reactions :

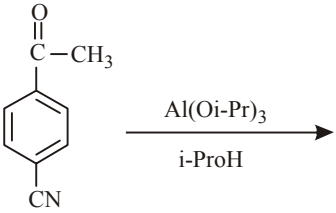
   (i) 

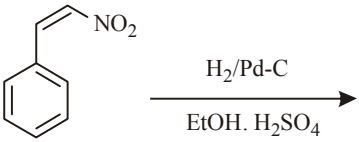
   (ii) $CH_3CHO + (C_2H_5)_2Zn \xrightarrow{MgBr_2/Ether}$

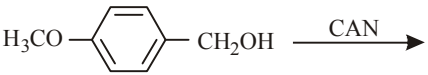
(iii) 

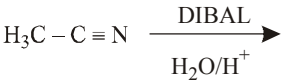
(iv) 

(v) 

(vi) 

(vii) 

(viii) 

(ix) 

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. What is protecting group ? How carbamates can be used to protect amines ?

3. Discuss the Functional group interconversion (FGI) by giving the suitable examples.

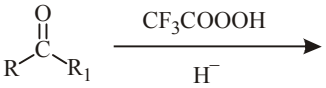
4. Write the mechanism of Wolf kishner reduction.

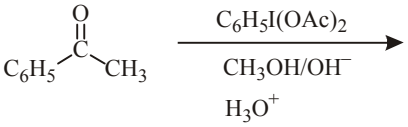
5. Why $NaBH_4$ behave as a better reducing agent in compare to the $LiAlH_4$ during the reduction of carbonyl compounds ?

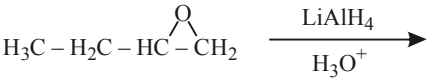
6. Discuss the two group C—X disconnections by giving the suitable examples.

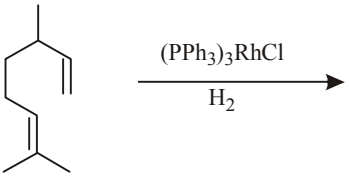
7. Explain the Wacker process.

8. Gives the product of the following reactions :

(i) 

(ii) 

(iii) 

(iv) 

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