

A-0561

Total Pages : 4

Roll No.

MSCCH-606

M.Sc. CHEMISTRY (MSCCH)

(Organic Synthesis)

4th Semester Examination, Session December 2024

Time : 2:00 Hrs.

Max. Marks : 70

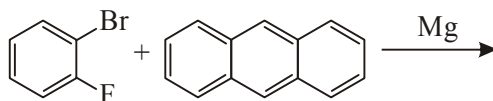
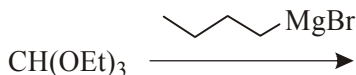
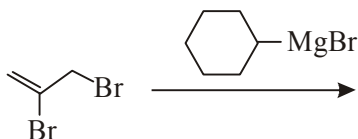
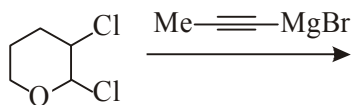
Note :- This paper is of Seventy (70) marks divided into Two (02) Sections 'A' and 'B'. Attempt the questions contained in these Sections according to the detailed instructions given therein. Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet 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 Organometallic compounds ? How they are classified ? Write any two method to prepare Mg, Li, Cu Organometallic compound.
2. Which reducing agent causes the selective reduction of alkynes into cis and Trans alkenes. Define these reactions with their mechanism.
3. (a) Complete the following reactions :



- (b) What is difference in the stereochemistry of product during the Prevost and Woodward oxidation reaction ?
4. What is principle of protection of amino groups ? Explain the use of 9-fluorenyl methyl carbonyl group for protecting amino group.
5. Explain the approach towards disconnection ? With suitable example explain the 1, 2 disconnection (C-X) and 1-3 disconnection (C-X).

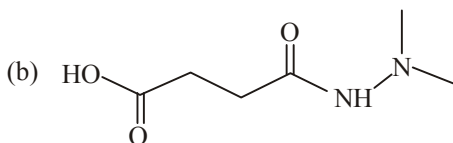
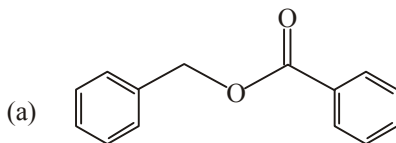
Section-B

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. Explain the following terms with suitable examples :
- (a) Synthons
 - (b) Synthetic equivalent
2. (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 ?

3. Discuss the mechanism of protection and deprotection of alcohols as trimethyl ethers.
4. Define the pyramidal inversion and ring inversion in piperidine.
5. Give the Mechanism of the following Reaction:
 - (a) Clemenson Reduction
 - (b) Wolf-Kishner Reduction
6. Show the Disconnection approach for the following molecules; represent synthons and respective synthetic equivalents and forward direction reaction.



7. Why NaBH_4 behave as a better reducing agent in compareto the LiAlH_4 during the reduction of carbonyl compounds ?
8. Define the reactivity order of carboxylic acid and its derivatives toward the reduction reactions
