

## FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

(Regular/Improvement/Supplementary)

## CHEMISTRY

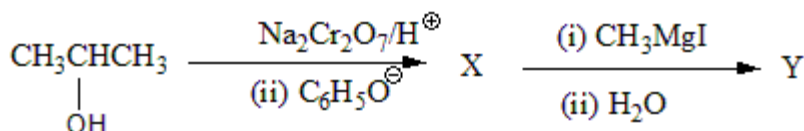
## GCHE5B07T: ORGANIC CHEMISTRY II

Time: 2 Hours

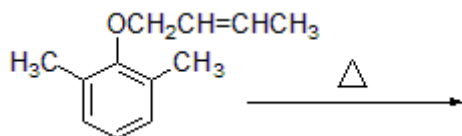
Maximum Marks: 60

SECTION A: Answer the following questions. Each carries *two* marks.  
(Ceiling 20 Marks)

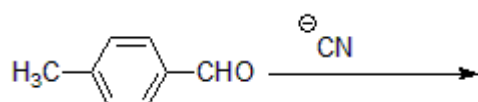
1. What is the product formed when acetaldehyde is treated with dil. NaOH?
2. What do you mean by Hoffmann Bromamide reaction?
3. Complete the following sequence of reactions:



4. Complete the following reaction:



5. In the Williamson synthesis we can add the alkoxide to alkyl halide or *vice-versa*. What actually should be done to obtain a good yield of an ether?
6. Identify the name reaction and the final products formed in the following reaction:



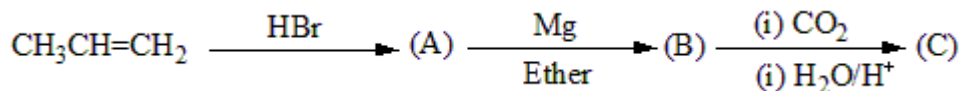
7. Solvolysis of CH<sub>2</sub>=CHCH<sub>2</sub>Cl is much faster compared to (CH<sub>3</sub>)<sub>3</sub>CCl. Explain.
8. What is Hell-Volhard-Zelinsky reaction? Give an example.
9. How does Grignard reagent react with CO<sub>2</sub>? Illustrate giving an example.
10. Give any one method of preparation of ethyl acetoacetate.
11. How will you synthesize barbituric acid from diethyl malonate?
12. How will you synthesize 2,4,6-tribromoaniline from aniline?

(PTO)

**SECTION B: Answer the following questions. Each carries five marks.  
(Ceiling 30 Marks)**

13. What is Curtius rearrangement reaction? Discuss the synthetic utility of this reaction.

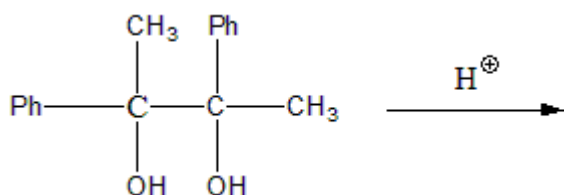
14. Identify (A), (B), and (C)



15. Discuss homologation reaction in carboxylic acids.

16. (i) Explain, with mechanism, the pinacol-pinacolone rearrangement.

(ii) Predict the product in the following reaction:



17. Describe the preparation of phenol from (i) Cumene; and (ii) aniline.

18. Give the general mechanism of nucleophilic addition reactions of carbonyl compounds. Give one example each of the addition reactions of carbonyl compounds with:

- (a) carbon nucleophile
- (b) oxygen nucleophile
- (c) sulphur nucleophile

19. Describe the Hinsberg method for the separation of 1°, 2° and 3° of amines.

**SECTION C: Answer any one question. Each carries ten marks.**

20. Give the mechanism, stereochemistry and kinetics of E2 and E1 reactions in alkyl halides.

21. Describe the mechanism and synthetic applications of the following reactions:-

- a. Beckmann rearrangement.
- b. Wittig reaction.

**(1 x 10 = 10 Marks)**