

## FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2022

(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. Describe the reaction of Grignard reagent with carbon dioxide.
2. Why Zn is preferred over Mg in Reformatsky reaction?
3. Illustrate the mechanism of pinacol-pinacolone rearrangement.
4. Why 1° alkyl halides are preferred in Williamson's ether synthesis?
5. Illustrate the products on heating anisole with concentrated HI.
6. Describe the product on reaction of acetyl chloride with diazomethane and Ag<sub>2</sub>O.
7. Compare the acidity of *p*-nitrobenzoic acid and benzoic acid.
8. Explain a simple route for the conversion of benzene to its sulphonyl chloride.
9. Elucidate a method for converting ethylacetoacetate to succinic acid.
10. Explain the reason for acidity of methylene protons in diethyl malonate.
11. How can we convert benzene to aniline?
12. Describe the Schotten-Baumann procedure for acylation of amines.

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

13. Describe the stereochemistry of S<sub>N</sub>2 reaction with an example.
14. *o*-Bromotoluene on reaction with NaNH<sub>2</sub> in liquid NH<sub>3</sub> gives two substitution products. Justify
15. Describe one test to distinguish between 1°, 2° and 3° alcohols.
16. Illustrate the mechanism of Riemer-Tiemann reaction.
17. Describe two tests to distinguish between aldehydes and ketones.
18. Explain a method with mechanism for the conversion of benzaldehyde to an  $\alpha$ -hydroxy ketone.
19. Explain a 'two-step' procedure for the conversion of propionic acid to its  $\alpha$ -cyano derivative.

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

20. Explain the following reaction with mechanism:  
a) Wittig reaction;                      b) McMurry reaction and                      c) Beckmann rearrangement
21. Explain the formation of reduction products of nitrobenzene in acidic, neutral and alkaline media.

(1 × 10 = 10 Marks)