

QP CODE: 23144842



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Reg No : .....

Name : .....

**M Sc DEGREE (CSS) EXAMINATION, NOVEMBER 2023**

**Third Semester**

Faculty of Science

**CORE - CH500302 - ORGANIC SYNTHESSES**

M Sc CHEMISTRY, M Sc ANALYTICAL CHEMISTRY

2019 ADMISSION ONWARDS

A3165C0C

Time: 3 Hours

Weightage: 30

**Part A (Short Answer Questions)**

Answer any **eight** questions.

Weight **1** each.

1. What is Shi epoxidation?
2. What is Baeyer-Villiger oxidation?
3. What is Birch reduction?
4. What is Huisgen 1,3-dipolar addition?
5. Discuss Ugi reaction.
6. Explain the advantages of  $\text{NaCNBH}_3$  over  $\text{NaBH}_4$  as a reagent.
7. Write a short note on Demjanov ring expansion and contraction.
8. What are the two mainly used  $\alpha$ -amino-protecting groups utilized in peptide synthesis? Give the structure.
9. How is Synthone different from a reagent.
10. Explain the term FGI.

(8×1=8 weightage)

**Part B (Short Essay/Problems)**

Answer any **six** questions.

Weight **2** each.

11. Discuss the mechanism of Sarrett oxidation with an example.
12. Write a note on Prevost reaction and Woodward modification.



13. Illustrate Brook rearrangement with an appropriate example . Discuss the mechanism in detail and its application in organic synthesis
14. Write a note on Suzuki coupling
15. Discuss the synthetic utility of Gilman reagent in organic synthesis
16. Explain a method each for the synthesis of thiazoles and oxazoles from  $\alpha$ -halo ketones.
17. How acetals and ketal formations are used in protection of carbonyls?
18. What is Umpolung? Explain the use of the concept in tuning the reactivity of a substrate by citing an example

(6×2=12 weightage)

### Part C (Essay Type Questions)

Answer any **two** questions.

Weight **5** each.

19. Elaborate on the mechanism and synthetic applications of the following reactions. i) Tishchenko reaction ii) Kulinkovich reaction iii) Sakurai reaction iv) Henry reaction
20. a) Illustrate the utility of trialkyl stannanes and trialkyl silanes as important organic reagents.  
b) Describe the properties and reactions facilitated by Gilman Reagent
21. Elaborate on the following cyclization reactions with appropriate examples: a) Pauson-Khand reaction b) Nazarov, c) Volhardt reaction, and d) Bergman cyclization.
22. a) Elaborate on various amino and carboxyl protecting groups in peptide synthesis? b) Explain how chemoselective and regioselective protections are employed in organic syntheses.

(2×5=10 weightage)