QP CODE: 24044861

24044861

Reg No : .....

Name : .....

M.Sc DEGREE (CSS) EXAMINATION, OCTOBER 2024

Third Semester

CORE - CH500302 - ORGANIC SYNTHESES

M.Sc CHEMISTRY, M.Sc ANALYTICAL CHEMISTRY

2019 ADMISSION ONWARDS

03633627

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Write a note on Sharpless asymmetric epoxidation.
2. Explain ozonolysis?
3. Explain acyloin formation with appropriate example.
4. Explain Baylis-Hillman reaction.
5. Illustrate Tebbe olefination?
6. What are the synthetic applications of tri-n-butyl tin hydride?
7. How oxetanes can be produced photochemically? Explain with example
8. Write on any two common protecting groups used in peptide synthesis.
9. How would you prepare m-hydroxyacetophenone from benzene, using a diazonium replacement reaction in your scheme?
10. Illustrate with an example of the umpolung reaction and indicate the carbon at which the reversal of polarity is occurring.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Discuss the mechanism of Kornblum oxidation with an example.
12. Explain the mechanism of Baeyer- Villiger Oxidation.
13. Write a note on Suzuki coupling.

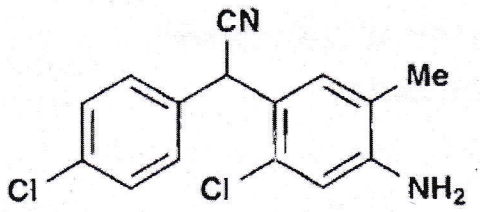
14. Write a note on Passerini reaction.

15. Write about Mitsunobu reaction with mechanism by taking an example.

16. Suggest one method each for the synthesis of the following heterocyclic compounds pyrrole and furan.

17. Write on protecting groups used in solution phase and solid phase peptide synthesis.

18. Suggest a retrosynthetic analysis and synthetic protocol for the amine derivative



(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Discuss in detail the mechanism of Huisgen 1,3-dipolar addition. Discuss the advantages and application with special reference to its application in organic synthesis.

20. Explain the utility of Hydride transfer reagents from Group III and Group IV in reductions.

21. Explain the following reactions with suitable examples: a) Demjenov reaction b) Reformatsky reaction c) ring-closing metathesis (RCM) with suitable examples

22. a) How are 1,2 diols are protected by acetal, ketal and carbonate formation? b) How alcohols are protected by ethers and silyl ethers and esters. Explain with examples?

(2×5=10 weightage)