QP CODE: 22000861

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Reg No : .....

Name : .....

M Sc DEGREE (CSS) EXAMINATION, APRIL 2022

Third Semester

Faculty of Science

CORE - CH500302 - ORGANIC SYNTHESES

M Sc CHEMISTRY,M Sc ANALYTICAL CHEMISTRY

2019 ADMISSION ONWARDS

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Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Explain Jacobsen epoxidation.
2. Write an example each for the use of MnO_2 and $KMnO_4$ reagents.
3. Explain pinacol formation.
4. Give an account of Ritter reaction.
5. Write a note on Passerini reaction.
6. Write a note on Mitsunobu reaction
7. Write a short note on Bergman cyclization.
8. How alcohols are protected by TBDMS and THP?
9. What is the role of protecting groups in solid phase synthesis?
10. How would you prepare m-hydroxyacetophenone from benzene, using a diazonium replacement reaction in your scheme?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Discuss the mechanism of John's oxidation with an example.
12. Explain the mechanism of Baeyer- Villiger Oxidation.

13. Briefly explain Tebbe olefination.

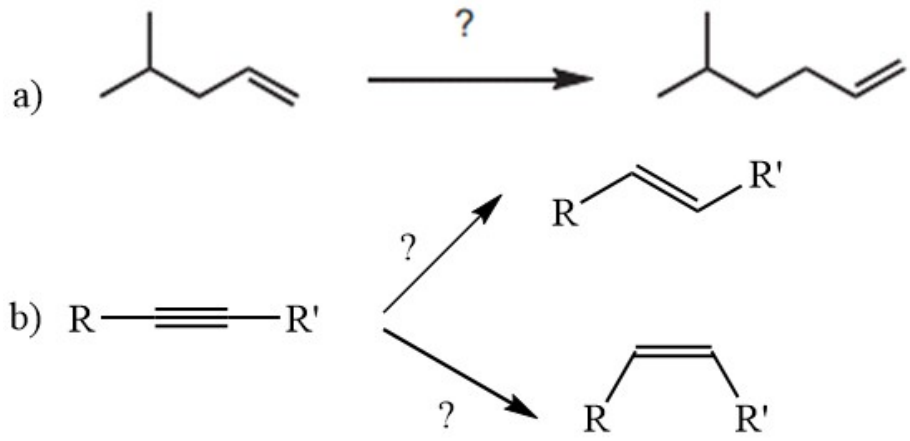
14. Discuss the importance of Click reactions.

15. Mention the role of Aluminium isopropoxide in oxidation - reduction reactions

16. What do you mean by ring-closing metathesis? Explain its mechanism.

17. Write on differential protection and selective deprotection in peptide synthesis.

18. Provide the reagents necessary to transform the given starting material into the desired alkenes.



(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Explain the following metal mediated coupling reactions a) Buchwald-Hartwig b) Stille c) Nozaki-Hiyama-Kishi

20. Give an account of the chemo-selectivity in metal hydride reductions with special references to (i) $NaCNBH_3$ (ii) DIBAL-H (iii) Red-Al (iv) $LiAlH_4$

21. How are the following heterocyclic compounds synthesized? (a) Oxazole (b) Thiazole (c) Pyrrole (d) Thiophene (e) Furan.

22. Illustrate the retrosynthesis of D-Luciferin with appropriate explanation.

(2×5=10 weightage)