TM243826O

Reg. No :.....

Name :.....

MASTER'S DEGREE (C.S.S) EXAMINATION, NOVEMBER 2024

2023 ADMISSIONS REGULAR

SEMESTER III - CORE COURSE CHEMISTRY

CH3C10TM20 - Synthetic Organic Chemistry

Time : 3 Hours **Maximum Weight : 30**

Part A

I. Answer any Eight questions. Each question carries 1 weight **(8x1=8)**

1. Describe Wacker oxidation. Name the catalyst and co-catalyst used in Wacker oxidation.
2. Describe the synthesis and uses of Collin's reagent, PCC and PDC with suitable examples.
3. Elaborate the mechanism of Brook rearrangement.
4. Discuss the advantage of Nozaki-Hiyama coupling and explain its mechanism.
5. Explain the reduction of carbonyl compounds using NaBH4.
6. Illustrate the role of Red-Al as a reducing agent.
7. Explain briefly acyclic alkene metathesis.
8. Explain the preparation of oxetanes from Y substituted alcohols.
9. Explain functional group interconversion with example.
10. Explain the various steps in one group C-C disconnection.

Part B

II. Answer any Six questions. Each question carries 2 weight **(6x2=12)**

11. **Determine the products formed by the reaction of trans-stilbene with OsO_4 with mechanism. Interpret the enantioselectivity of the reaction.**
12. Explain the mechanism of (a) Wacker oxidation (b) Birch reduction.
13. Discuss the mechanism of Negishi coupling by giving its importance.
14. Explain the mechanism of Henry reaction used to prepare a C-C bond.
15. Discuss the preparation and reactions of (a) Gilmann reagent (b) DDQ (c) DCC.
16. Explain different methods for the preparation of thiophene and imidazole.
17. Discuss the mechanism and advantage of Mitsunobu Reaction using any one example.
18. Discuss various methods used for the preparation of thiazole and oxazole.

Part C

III. Answer any Two questions. Each question carries 5 weight **(2x5=10)**

19. Illustrate the mechanism of following reactions (a) Oppenauer oxidation (b) Pinacol reaction (c) Se and Cr based allylic oxidation.
20. Predict the mechanism of the following reactions (a) Ugi reaction (b) Huisgen1,3-dipolar addition (c) Biginelli reaction (d) Wohl-Ziegler reaction.
21. Comment on the common protecting groups used in peptide synthesis.
22. Discuss (a)The important disconnections in Diels alder reaction and 1,3 difunctionalised compounds (b) The synthesis of Corey lactone.