21P313 (Pages: 2) Name: .....

Reg.No: .....

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2022

(CBCSS - PG)

(Regular/Supplementary/Improvement)

CC19P CHE3 E01 - SYNTHETIC ORGANIC CHEMISTRY

(Chemistry)

(2019 Admission onwards)

Time : 3 Hours Maximum : 30 Weightage

Section A

Answer any ***eight*** questions. Each question carries 1 weightage.

1. What is Baeyer-Villiger oxidation? Write the mechanism.
2. Give one synthetic application of Tri-butyltinhydride
3. Explain why benzoic acid is stronger than acetic acid?
4. What happens when benzamide is heated with bromine and KOH? Explain.
5. What happens when acetic acid is treated with PCl5? Explain
6. Give the mechanism of addition of HCN to propanal.
7. Write a note on different palladium catalysts using for coupling reactions.
8. Draw the catalytic cycle of negeshi coupling reaction.
9. Draw the correct stereo structures of (a) Corey lactone (b) Djerassi Prelog lactone
10. Write a note on One group C-C disconnections.
11. Suggest a synthesis and an application of benzene tricarbonyl chromium complex.
12. Give a method for the synthesis of oxepines.

(8 × 1 = 8 Weightage)

Section B

Answer any ***four*** questions. Each question carries 3 weightage.

13. Write the mechanism and stereochemistry of epoxidation of akenes by peracids
14. Discuss the steps involved in the preparation of ketones from aldehydes based on the concept of umpolung.
15. When acetone is treated with triphenyl phospherous ylide to form 2-methyl propene. Explain and suggest a suitable mechanism for this reaction.

16. Give the mechanism and Find the product; Ar-Br +(OH)2B-CH=CH-CH3→…....Using Pd(PPh3)4 catalyst,KOH

17. Write a note on Nucleophilic, electrophilic and nuetral synthons and synthetic equivalents using two examples each.

18. What is the importance of retrosynthetic analysis in Total synthesis? How will you synthesis propranolol from 1-naphthol?

19. Discuss the structure and synthesis of Benzimidazole and Tetrazole.

(4 × 3 = 12 Weightage)

Section C

Answer any ***two*** questions. Each question carries 5 weightage.

20. Explain the reagents used for Cis and trans hydroxylation. Breifly describe the mechanism of each reaction.

21. (a) What is a phase transfer catalyst? Give examples with the role that such a catalyst plays.
    (b) Illustate the application of phase transfer catalyst by writing equations for the reaction between NaCN and n-C8H17Cl with the catalyst n-Bu4N+Cl-

22. Write notes on the following reaction with mechanism.
    (a) Perkin reaction (b) Prins reaction (c) Darzen reaction (d) Claisen reaction

23. Describe the retrosynthetic analysis and total Synthesis of Longifolene.

(2 × 5 = 10 Weightage)

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