23P313 (Pages: 2) Name: .....

Reg.No: .....

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2024

(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. Explain TEMPO oxidation with example.
2. Write a note on Lindlar's catalyst.
3. How will you distinguish between acetic acid and acetone?
4. How a nucleophilic substitution can be carried out successfully by using a non polar aprotic solvent like a hydrocarbon or a chlorinated hydrocarbon?
5. Illustrate with an example each, two different nucleophilic addition reactions undergone by aldehydes.
6. Identify the product obtained when chlorine is bubbled through acetaldehyde. Explain.
7. Give an example for C-O bond formation using Pd catalyst.
8. Explain Kumada reaction with example.
9. What do you mean by synthons and synthetic equivalents?
10. Describe the Structure and synthesis of Oxepines.
11. What is oxone? Give one synthetic application of oxone.
12. Describe the Structure and synthesis of Oxepines.

(8 × 1 = 8 Weightage)

Section B

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

13. (a) What happens when acetaldehyde is treated with dil.NaOH? Explain.
    (b) Explain what happen when acetaldehye is treated with sodium bisulphite solution.
14. Explain the Michael addition reaction with examples and mechanism.
15. Explain sonogashira cross coupling reaction with example and synthetic applications
16. Give the mechanism and Find the product; Ar-Br + Ph-CH=CH_2→….. Using $Pd(OAc)_2$ catalyst
17. Describe the total synthesis of Djerassi Prelog lactone

18. Describe in detail about One group and two group C-C disconnections.

19. What is the importance of retrosynthetic analysis in Total synthesis? How will you synthesis paracetamol from phenol?

(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. Discuss the synthesis and applications of the following reagents (a) Benzene Tri carbonyl compounds (b) Gilman's reagent (c) Tri-n-butyl tin hydride

22. Write notes on the following reaction with mechanism. (a) Mannich reaction (b) Stork enamine reaction (c) Robinson ring annulation reaction.

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

(2 × 5 = 10 Weightage)

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