



QP CODE: 25024875



Reg No :

Name :

M.Sc DEGREE (CSS) EXAMINATION, APRIL 2025

Fourth Semester

M Sc Industrial Chemistry

ELECTIVE - CH900403 - ADVANCED SYNTHETIC ORGANIC CHEMISTRY

2020 ADMISSION ONWARDS

E6687F45

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. Discuss briefly the use of DMSO in organic synthesis.
2. What is catalytic reduction reactions? Give an example.
3. What is the driving force for the reactivity of DCC?
4. Explain the reaction taking place between N-Butoxy carbonyl pyrrole and acetylene. What is the product formed in the reaction?
5. Which product is formed as a result of Favorskii rearrangement, when 2-Chlorocyclohexanone is treated with sodium ethoxide?
6. Explain Schmidt reaction.
7. What are the general characteristics of Buchwald-Hartwig Cross Coupling Reaction?
8. Describe the Volhard reaction.
9. Explain the basic principles of Retrosynthetic analysis.
10. What is umpolung equivalent? Explain with one example.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. Explain the Pb based ozonolysis reaction.





12. Discuss about the mechanism of reduction reaction using LiAlH₄.
13. List out the main differences between Gilman Reagent and Grignard reagent using suitable reactions.
14. Explain the synthesis of triazole and tetrazole by cycloaddition reaction.
15. What is the difference between Pinacol-pinacolone and Semi-pinacol rearrangements? Explain.
16. Describe the mechanism of Ritter Reaction.
17. Explain the Stille reaction with the help of reaction mechanism.
18. Explain the retrosynthesis of the following compounds? And also describe their synthesis? (a) 1-phenyl-1-cyclohexene (b) R-CH₂-CH₂-CH₂-OH

(6×2=12 weightage)

Part C (Essay Type Questions)

Answer any **two** questions.

Weight 5 each.

19. Write the synthetic utility of the following reactions: a) Hydroboration b) Wacker oxidation c) Oppenauer oxidation.
20. Explain the following reactions using mechanism (1) Clemmensen reduction (2) Wolff-Kishner reduction (3) Bouveault-Blanc reduction (4) MPV reduction.
21. Explain one synthetic application each of the following reagents in Organic synthesis (1) DDQ (2) DEAD (3) Baker's yeast (4) Lindlar catalyst, (5) phase transfer catalysts
22. Explain (i) Hantzsch pyridine synthesis with the help of mechanism? (ii) Knorr pyrazole synthesis with the help of mechanism.

(2×5=10 weightage)

