QP CODE: 24803035

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Reg No : .....

Name : .....

INTEGRATED MSC DEGREE EXAMINATION, MAY 2024

Seventh Semester

INTEGRATED MSC BASIC SCIENCE-CHEMISTRY

CORE - ICH7CR03 - ADVANCED ORGANIC CHEMISTRY 1

2020 Admission Onwards

1D075023

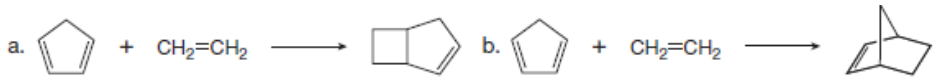
Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. What are enamines? Give examples.
2. Provide an example of a synthetic transformation involving C-X bond formation mediated by a carbocation intermediate.
3. Describe the synthetic applications of Noyori annulation reaction .
4. What are addition and insertion reactions of carbenes?
5. Write a note on generation of nitrenes.
6. Give two radical formation pathways.
7. Explain the reaction of aq. HI with ether using the HSAB principle.
8. What are photosubstitution reactions? Explain with an example.
9. Explain cycloaddtion reaction citing the example of Diels Alder reaction.
10. What type of cycloaddition is shown in each equation?Use curved arrows and show the formation of the product.



(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. What is Favorski rearrangement? Explain its mechanism.

12. What are carbocations? Explain about the formation, structure and stability of carbocations.

13. Write a note on amination of haloarenes.

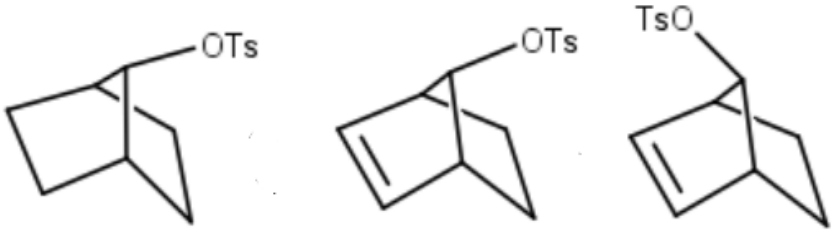
14. Explain Barton Decarboxylation reaction in detail with mechanism.

15. Consider the second step in the electrophilic addition of HBr to an alkene. Is this step exergonic or endergonic and does the transition state represent the product or the reactant (cation)? Draw out an energy diagram of this step reaction.

16. Briefly explain about the common photochemical reaction pathways of azo compounds and its applications.

17. Explain by FMO approach that [4+2] cycloaddition is photchemically forbidden.

18. Which among the following is most reactive to replacement of tosyl group with acetate group.Give reason.



(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Discuss the formation, structure, and stability of carbanions with suitable examples.

20. Explain in the detail the following hydrolysis reaction mechanisms of esters: AAC2, AAC1, AAL1, BAC2and BAL1 mechanisms.

21. Compare and contrast the mechanisms and synthetic applications of the Di-π-methane and Photo-Fries rearrangement.

22. Discuss the beta eliminations involving cyclic transition state in the conversion of alcohol to Xanthate ester and pyrolysis of acetates.

(2×5=10 weightage)