QP CODE: 20000781

20000781

Reg No : .....

Name : .....

MSc DEGREE (CSS) EXAMINATION , NOVEMBER 2020

Second Semester

CORE - CH500202 - ORGANIC REACTION MECHANISMS

M Sc ANALYTICAL CHEMISTRY,M Sc APPLIED CHEMISTRY ,M Sc CHEMISTRY,
M Sc PHARMACEUTICAL CHEMISTRY,M Sc POLYMER CHEMISTRY

2019 Admission Onwards

C956E2E5

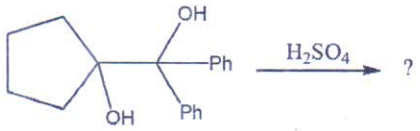
Time: 3 Hours

Weightage: 30

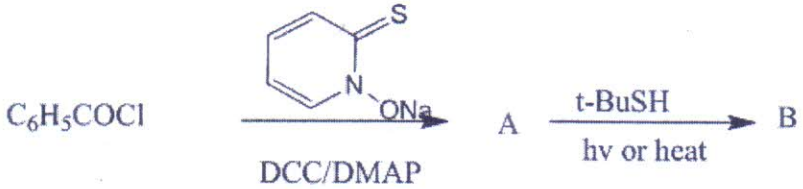
Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Draw the mechanism of SN1 reaction (No explanation is required).
2. Draw the mechanism for the formation and reaction of a kinetic enolate
3. 

Draw the mechanism and the product.
4. Distinguish between singlest carbene and triplet carbene.
5. What are nitrenes? Why nitrenes are more stable than carbenes?
6. Give the structure of the products A and B in the following transformation. Explain the reaction.



7. Explain Wolf-Kishner reduction.
8. Explain dyotropic reaction with suitable example.
9. Discuss Woodward-Hoffmann rules for pericyclic reactions.
10. Explain Cope rearrangement with suitable example

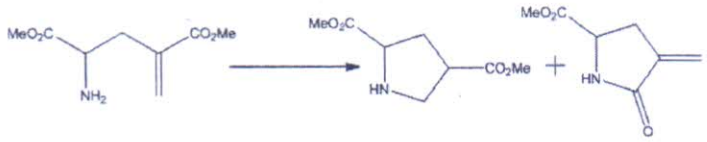
(8×1=8 weightage)

Part B (Short Essay/Problems)

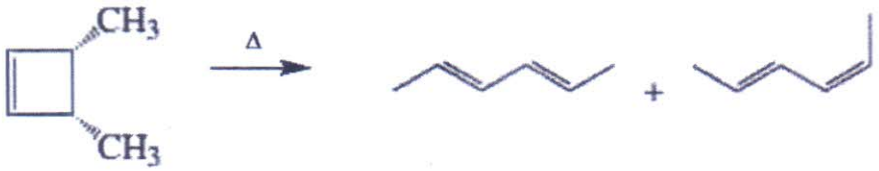
*Answer any **six** questions.*

*Weight **2** each.*

11. Compare the addition of HBr to propene in presence and absence of peroxide.
12. Write short notes on phosphorous and sulphurylides
13. Differentiate between classical and non-classical carbocations.
14. What are the similarities observed in Cutius and Hofmann rearrangements?
15. How will you prove the favourable product in the following reaction?



16. Suggest a method for the preparation of primary and secondary alcohols from carbonyl compounds.
17. Show how norbornane could be prepared from cyclopentadiene.
18. cis -3,4-Dimethylcyclobutene undergoes thermal ring opening to form the two products shown. One of the products is formed in 99% yield, the other in 1% yield. Distinguish which one of the structures represent the major product?



(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Write a brief account of the effect of substrate, reagent, leaving group, solvent and neighbouring group on S_N1 and S_N2.
20. Draw the mechanisms of Dieckmann, Knoevenagel, Stobbe, Darzen and acyloin condensations.
21. Discuss briefly the structure and reactions of α, β- unsaturated carbonyl compounds involving electrophilic and nucleophilic addition
22. Elaborate on different types of Unimolecular pyrrolytic elimination reactions with suitable examples.

(2×5=10 weightage)