

QP CODE: 23004969



Reg No :

Name :

MSc DEGREE (CSS) EXAMINATION , JULY 2023

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

BF65DAE3

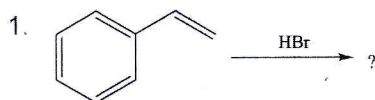
Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

Answer any **eight** questions.

Weight 1 each.

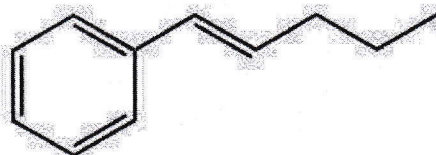


Draw the major product. Draw the mechanism leading to it

2. Draw the mechanism of Claisen condensation .(No explanation is required)
3. Draw the mechanism of Noyori annulation
4. Draw the mechanism of halolactonisation.(No explanation is required)
5. Which starting materials and the reagent are needed to prepare the following compounds ?

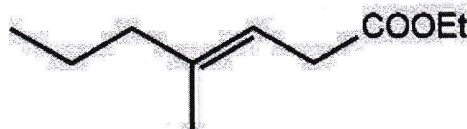
a)

?



b)

?



6. What are benzyne? Discuss their structure. How they are formed?
7. Write an example of intramolecular and intermolecular addition of radicals to alkene.

8. Identify the reaction and unknown products A, B and C.



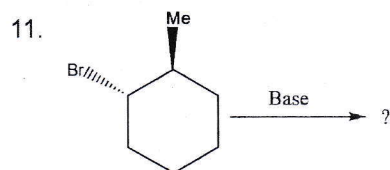
9. Explain Cheletropic reaction using suitable example
10. Briefly explain how 5-methyl-1,3-cyclopentadiene rearranges to form 1-methyl-1,3-cyclopentadiene and 2-methyl-1,3-cyclopentadiene.

(8×1=8 weightage)

Part B (Short Essay/Problems)

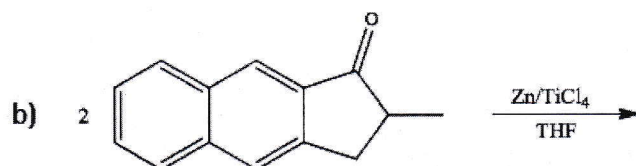
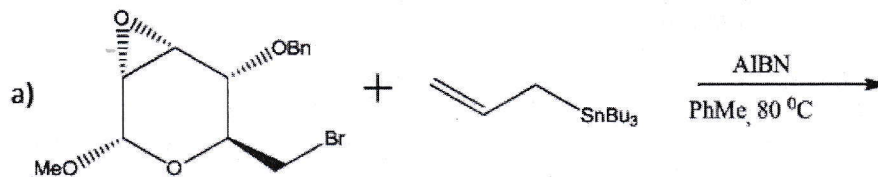
Answer any **six** questions.

Weight 2 each.

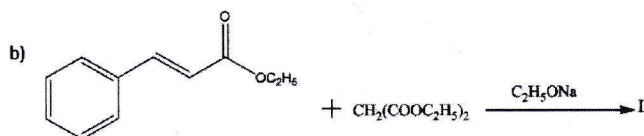
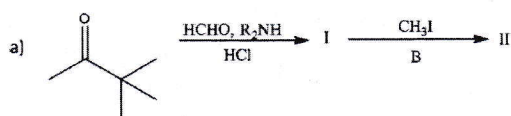


What is the major product? Justify your answer.

12. Write a short note on reactions of carbanions
13. Differentiate between classical and non-classical carbocations.
14. Explain the reactions of nitrenes.
15. Provide the products of the following reactions with mechanism.

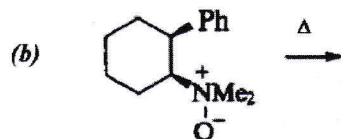
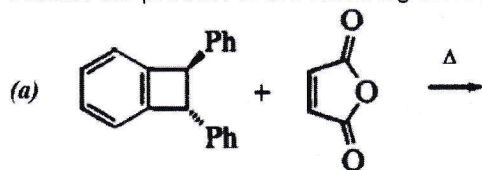


16. Identify the unknown products of the reactions and explain the mechanism.





17. What are the similarities and differences between Diels-Alder and Ene reactions?
18. Predict the product of the following thermal reactions and rationalize.



(6×2=12 weightage)

Part C (Essay Type Questions)

Answer any **two** questions.

Weight 5 each.

19. Draw the mechanisms for SN1, SN2, SNi, SE1, and SE2 reactions. Briefly mention their salient features.
20. Explain the mechanisms for Schmidt and Lossen rearrangement reactions. What are the similarities observed?
21. Briefly discuss the oxidation, reduction (Clemmensen and Wolf-Kishner) and addition (cyanide, ammonia, alcohol) reactions of aldehydes and ketones
22. With the help of the correlation diagram and PMO method, show that the Diels-Alder reaction is a thermally allowed process.

(2×5=10 weightage)