QP CODE: 22000490

22000490

Reg No : .....

Name : .....

MSc DEGREE (CSS) EXAMINATION , JANUARY 2022

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

4468FED7

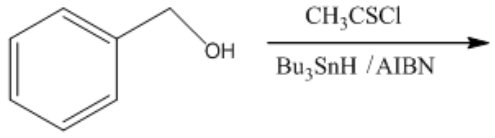
Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

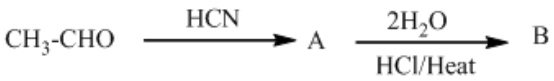
*Answer any **eight** questions.*

*Weight **1** each.*

1. Draw mechanism for the addition reaction between HCl and Propene (No explanation is required).
2. What are ylides? Draw one reaction of an ylid with mechanism.
3. Write a short note on the structure of carbocations.
4. Among iodolactonisation and chlorolactonisation, which is more efficient? Justify your answer.
5. How can we prepare anthranilic acid from phthalimide?
6. Name the product formed and explain the mechanism when o-bromoanisole is treated with sodalime in liquid ammonia.
7. Complete the following reaction.



8. Identify the reaction and products.



9. Briefly explain Claisen Rearrangement with appropriate example.
10. What is Chugaev elimination? Illustrate with an example.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

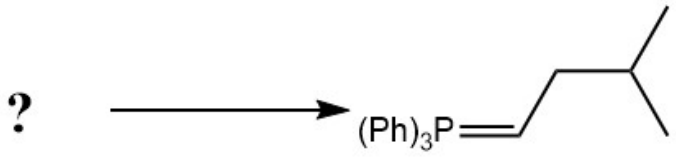
*Weight **2** each.*

11. 1-chloro-2,2-dimethylpropane converts to 2-methyl-2-butene in appropriate conditions. Identify and draw the mechanism.

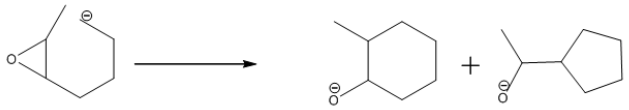
12. Compare the chemistry of enolates and enamines.

13. Write shot notes on Noyori annulation and Prins reaction..

14. Write the starting materials, propose a synthetic mechanism for the conversion and name the reaction.



15. Indicate the favourable product in the following reaction and suggest a reason?



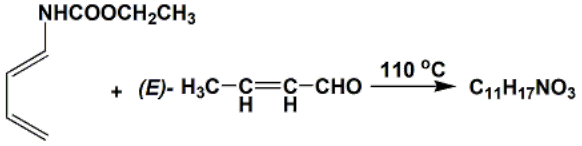
16. Identify the reactions and discuss the mechanism.

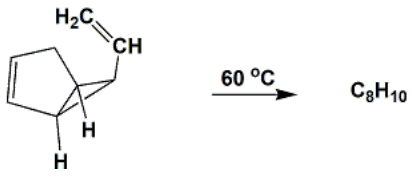
a) $2(CH_3)_3C\text{-}CHO \xrightarrow{\text{Conc.NaOH}} A + B$

b) $2CH_3\text{-}CO\text{-}CH_3 \xrightarrow{OH^-} A \xrightarrow{\text{Heat}} B$

17. Explain the relation between Diels-Alder reaction and 1, 3-dipolar addition.

18. Predict the products of the following reactions on the basis of the reaction mechanism and anticipated transition structure with correct stereochemistry.

a) 

b) 

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Draw the mecahnisms for SN1, SN2, SNi, SE1 and SE2 reactions. Briefly mention their salient features.

20. Draw the mechanisms of Claisen, Dieckmann, Knoevenagel, Stobbe and Darzen condensations.

21. Explain Michael addition, Mannich reaction, Robinson annulation with suitable examples.

22. Elaborate on different pericyclic reactions with suitable examples and discuss their importance in organic synthesis.

(2×5=10 weightage)