

19001838



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Reg. No.....

Name.....

M.Sc. DEGREE (C.S.S.) EXAMINATION, JUNE 2019

Second Semester

Faculty of Science

Branch : Chemistry

AN2C06/AP2C06/CH2C06/PH2C06/POH2C06—ORGANIC REACTION MECHANISMS

(Common to all Branches of Chemistry)

[2012 Admission onwards]

Time : Three Hours

Maximum Weight : 30

Section A

*Answer any **ten** questions.*

Each question carries weight 1.

- 1 Why halocyclopropanes are reluctant to undergo S_N2 reaction ?
- 2 What is Markovnikov's addition ? Give an example.
- 3 What are the main reactions of carbanions ?
- 4 Discuss the factors that affect carbocation stability.
- 5 Distinguish between classical and non-classical carbonations.
- 6 Discuss the relative stabilities between singlet and triplet carbenes.
- 7 Discuss two methods of generation of radical intermediates.
- 8 What are Baldwin's rules?
- 9 Discuss the stereochemistry of addition of an alcohol to a carbonyl compound
- 10 What is PMO method ? What are its applications?
- 11 What are ene reactions ? Give two examples.
- 12 Explain why [1,5] sigmatropic shift of hydrogen is thermally allowed process ?
- 13 What are chelotropic reactions ? Give two examples.

(10 × 1 = 10)

Turn over





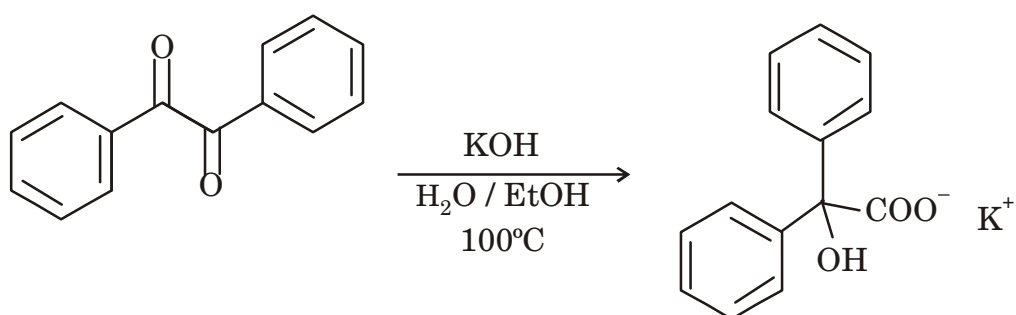
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Section B

Answer any **five** questions by attempting not more than three questions from each bunch.
Each question carries weight 2.

BUNCH 1

14. How do you distinguish E1 from E2 path ?
15. Explain the mechanism of Darzen reaction.
16. Discuss the mechanism of the following conversion :



17. Explain the mechanism of :

**BUNCH 2**

18. Discuss the intra and inter molecular radical intermediate addition to alkynes.
19. Explain the mechanisms of 1.2 and 1.4 nucleophilic additions to α . β -unsaturated carbonyl compounds.
20. With the help of correlation diagram, show that [2 + 2] cycloaddition reaction is photochemically allowed process.
21. Explain the stereochemistry of Cope rearrangement.

(5 \times 2 = 10)





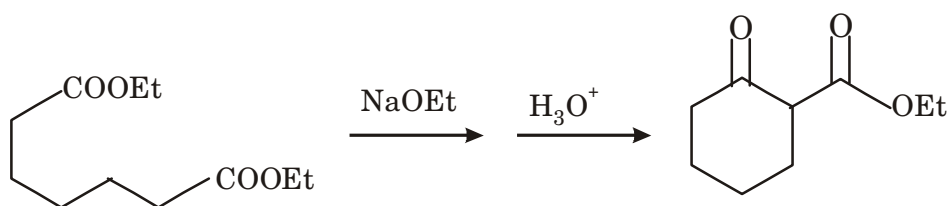
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Section C

Answer any **two** questions.

Each question carries weight 5.

22. (a) Discuss the effect of leaving group on rate of S_N1 and S_N2 reactions.
(b) Discuss the mechanism of the following reaction :



23. (a) Discuss the mechanism of Wagner-Meerwein rearrangement.
(b) Explain the mechanism of Beckmann rearrangement. Discuss its stereochemistry.
24. (a) Mention some reactions of carbon free radicals.
(b) Explain the mechanism of Cannizzaro reaction.
25. Explain Sommelet - Hauser reaction. Describe its mechanism. What are its applications ?

(2 × 5 = 10)

