

20P213

(Pages: 2)

Name:

Reg. No:

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2021

(CUCSS - PG)

(Regular/Supplementary/Improvement)

CC19P CHE2 C07 - REACTION MECHANISM IN ORGANIC CHEMISTRY

(Chemistry)

(2019 Admission onwards)

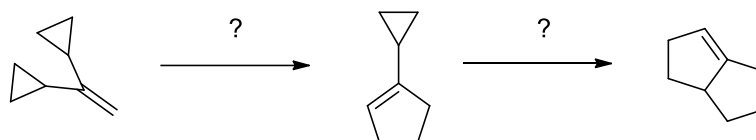
Time: Three Hours

Maximum: 30 Weightage

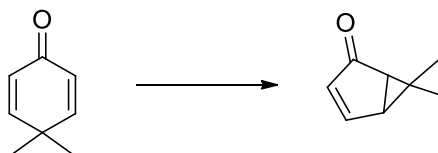
Section – A

Answer any *eight* questions. Each question carries 1 weightage.

1. How does α - and β - substitution affect the reactivity of the substrate and mechanism of the reaction in aliphatic nucleophilic substitution?
2. What are *syn* eliminations? Illustrate with a suitable example.
3. Explain the Hoffmann degradation method used in structural elucidations of natural products.
4. How do you distinguish singlet and triplet carbenes by chemical reaction?
5. Write the mechanism for the acid catalysed formation of acetals.
6. What is degenerate Cope rearrangement
7. Complete the following reaction with mechanism



8. What is Ipsso substitution? Illustrate with suitable example
9. Explain the use of extrusion reactions in C=C bond formation reaction.
10. Explain the following reaction



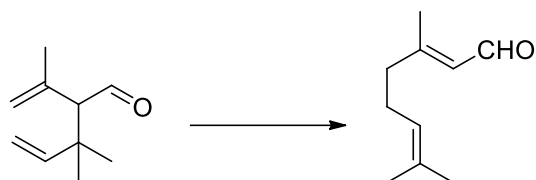
(8 × 1 = 8 Weightage)

Section – B

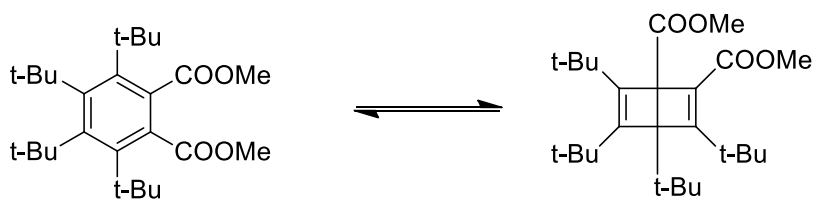
Answer any *six* questions. Each question carries 2 weightage.

11. Discuss the orbital explanation for the *endo* rule in Diels–Alder reactions with suitable example

12. Explain the mechanistic details of benzoin condensation. and Dieckmann condensation.
13. Discuss the BAC1 and BAC2 mechanisms of ester hydrolysis. What are the experimental evidences that support acyl cleavage?
14. Suggest a mechanism for the formation of Citral in the following reaction



15. Explain the photoreactions of benzene and its derivatives.
16. Explain mechanistic and stereochemical aspects of E1cB elimination reactions.
17. Write a suitable method for the conversion of cholesterol to testosterone
18. Explain the following reaction.



(6 × 2 = 12 Weightage)

Section C

Answer any *two* questions. Each question carries 5 weightage.

19. Discuss mechanism of following electrophilic aromatic substitution reaction.
 - (a) Nitration
 - (b) Halogenation
 - (c) Acylation
 - (d) Sulphonation
20. Write a note on (a) photoreactions of acyclic and cyclic ketones and (b) Barton reaction
21. A thermal electrocyclic reaction involving $[4n+2]$ π -electrons proceed with disrotatory motion, and photochemical reaction proceed with conrotatory motion, explain using Woodward-Hoffmann rules. Verify by correlation method.
22. Discuss the total synthesis of Longifolene.

(2 × 5 = 10 Weightage)
