Reg. No…… Name…….. **26P222**

M.Sc. DEGREE END SEMESTER EXAMINATION - APRIL 2026

SEMESTER 2: CHEMISTRY/PHARMACEUTICAL CHEMISTRY

COURSE: 24P2CHET06/24P2CPHT06 - ORGANIC REACTION MECHANISM

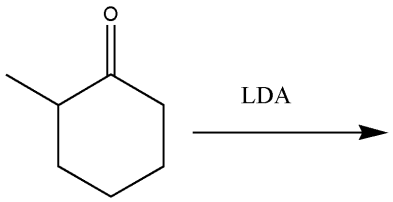
(For Regular 2025 Admission and Improvement/Supplementary 2024 Admissions)

Time : Three Hours Max. Weights: 30

PART A
Answer any 8 questions

Weight : 1

1. Give an example of SNi reaction. What is the stereochemical configuration of product obtained after SNi reaction? (CO1)
2. What are the reagents, electrophile, catalyst and product in Gattermann-Koch reaction? (CO1)
3. Draw enolates formed in the following reaction and which enolate is kinetic enolate? (CO2)



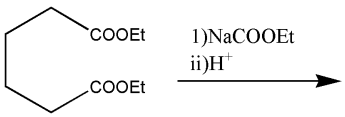
4. Give one example each for sulphur and phosphorous ylide. (CO2)
5. Write a reaction involving non-classical carbocation. (CO2)
6. What is Noyori annulation? (CO2)
7. How can we distinguish singlet and triplet carbenes using cyclopropanation reaction? (CO2)
8. What is McMurry coupling? (CO3)
9. Give an example of hydroperoxide rearrangement. (CO3)
10. Draw FMO of butadiene and show which rotation is allowed for thermal electrocyclic reaction. (CO4)

(1 x 8 = 8)

PART B
Answer any 6 questions

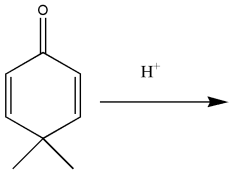
Weights: 2

11. Explain the Dieckman condensation mechanism of the following reaction.



(CO2)

12. Illustrate Peterson's olefination in different conditions. (CO2)
13. Explain the oxymercuration and demercuration process. (CO2)
14. Write the rearrangement mechanism of the following reaction. (CO2)



15. Discuss general aspects of Baldwin rule. (CO3)
16. Discuss the detection methods for the free radicals in detail. (CO3)
17. Discuss [4+2] and [2+2] cycloaddition with stereochemical aspects. (CO4)
18. Explain the Sommlet Hauser rearrangement with mechanism. (CO4)

(2 x 6 = 12)

PART C

Answer any 2 questions.

Weights : 5

19. Write a comprehensive essay on organic reaction mechanism of SN1, SN2, E1 and E2 reactions. How do different substrates affect the rate of the reaction? (CO1)
20. Discuss the mechanism of a) Beckmann rearrangement b) Wolff rearrangement c) How arynes were prepared and how they are utilized? (CO2)
21. Using FMO method, derive the selections rules that govern thermal and photochemical electrocyclization reactions of 4n and 4n+2 electron systems. (CO4)
22. Discuss the following rearrangement reactions a) Wittig b) Mislow-Evans and c) Benzil-Benzilic acid and d) ene reaction. (CO4)

(5 x 2 = 10)