Reg. No ..... Name **26P422**

M.Sc. DEGREE END SEMESTER EXAMINATION- MARCH 2026

SEMESTER 4 : CHEMISTRY

COURSE : **24P4CHET14EL : ADVANCED ORGANIC CHEMISTRY**

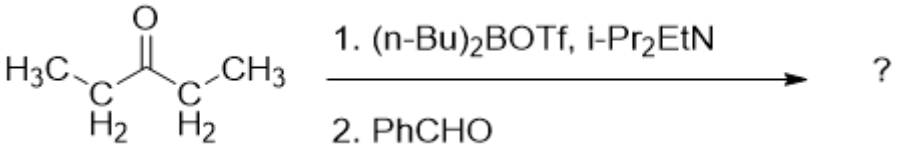
(For Regular - 2024 Admission)

Time : Three Hours Max. Weights: 30

PART A

Answer any 8 questions **Weight: 1**

1. What is the significance of serine-61 in the mechanism of action of penicillin? (U, CO 4)
2. Explain the term 'addition polymers' with any one example (U, CO 2)
3. Name a green refrigirant substitute. What is its advantage? (R, CO 1)
4. Explain the clay catalysed green synthesis using an example. (A, CO 1)
5. Mention any two common mistakes in applying scientific methods. (An, CO 5)
6. Distinguish between agonist and antagonist. (U, CO 4)
7. Complete the following reaction sequence and predict the stereochemistry of the major product.



(A, CO 1)

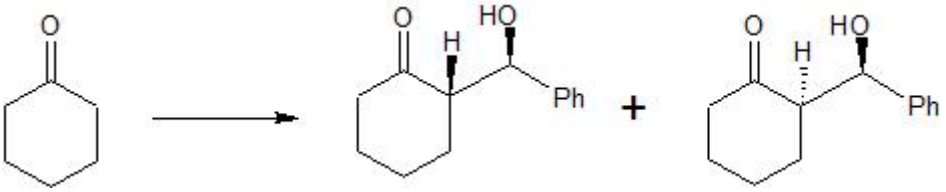
8. How is a hypothesis transformed into a theory? (A, CO 5)
9. Distinguish between nucleotide and nucleoside. (R, CO 1)
10. Explain any two roles of theory. (R, CO 5)

(1 x 8 = 8)

PART B

Answer any 6 questions **Weights: 2**

11. Discuss briefly the various types of chemistry literature. (An, CO 5)
12. Discuss the theories of drug-receptor interactions. (U, CO 4)
13. Discuss the synthesis of prostaglandins with special emphasis to PGE_2 and$PGF_{2\alpha}$ (R, CO 3)
14. Explain the asymmetric aldol condensation pioneered by Evans. (U, CO 1)
15. Complete the reaction sequence and suggest a mechanism for the following. Suggest a reagent for the stereospecific formation of *anti* product.



(A, CO 1)

16. Explain the biosynthesis of glucose from ribulose-1,5-diphosphate. (A, CO 1)
17. Explain with the detailed mechanism of Clay catalysed Coumarin synthesis. (A, CO 1)
18. Explain with mechanism of Thiamine catalysed benzoin condensation. (A, CO 1)

(2 x 6 = 12)

PART C

Answer any 2 questions **Weights: 5**

19.	Give the synthesis of i) Cyanin, ii) Papaverine and iii) Riboflavin.	(U, CO 3)
20.	Give a detailed account on the classification of polymers.	(U, CO 2)
21.	a) Detail the synthesis of limonene from acetylCoA? b) Explain oxidative phenol coupling with an example?	(U, CO 1)
22.	Explain with example a. DNA intercalating agents b. DNA alkylating agents c. DNA chain cutting agents.	(U, CO 4)

(5 x 2 = 10)

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1	Illustrate the principles of biosynthesis, biomimetic synthesis, green synthesis and stereoselective transformations	U	3, 4, 7, 9, 14, 15, 16, 17, 18, 21	19
CO 2	Explain the chemistry of advanced polymeric materials.	A	2, 20	6
CO 3	Describe the structure and applications of natural products and biomolecules.	U	13, 19	7
CO 4	Explain the mechanism of drug action and drug designing.	U	1, 6, 12, 22	9
CO 5	Apply the methodology of research.	U	5, 8, 10, 11	5

Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;