

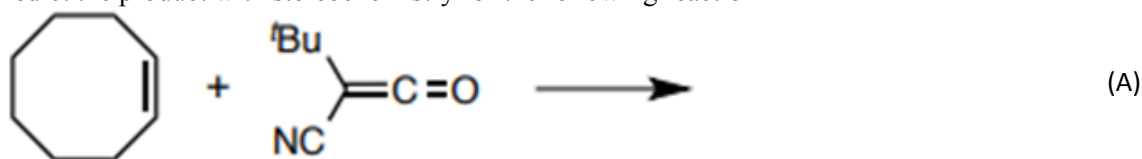
MSc DEGREE END SEMESTER EXAMINATION - OCTOBER 2024**SEMESTER 3 : CHEMISTRY / PHARMACEUTICAL CHEMISTRY****COURSE : 21P3CHET10 / 21P3CPHT10 ; ORGANIC SYNTHESIS***(For Regular 2023 Admission and Supplementary 2022/2021 Admissions)*

Duration : Three Hours

Max. Weights: 30

PART A**Answer any 8 questions****Weight: 1**

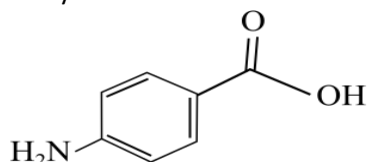
- How the cyclophane hosts are useful in binding neutral, cationic and anionic guests? Explain with example. (U, CO 4)
- What is functional group transposition? ()
- What is swern oxidation ? (U, CO 1)
- Differentiate between K and L- selectrides. (U, CO 1)
- Predict the product with stereochemistry for the following reaction



- Illustrate the method of functional group interconversion (FGI) with a suitable example. ()
- Give examples of Ullmann reaction and Henry reaction? (R, CO 2)
- Explain the role of protecting groups in organic synthesis. (U, CO 4)
- What are synthons and synthetic equivalents? ()
- What are the advantages of solid phase peptide synthesis (SPPS) over solution phase peptide synthesis? (U, CO 4)

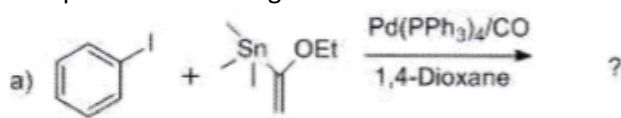
(1 x 8 = 8)**PART B****Answer any 6 questions****Weights: 2**

- Discuss the amphoteric nature of Imidazole. (U, CO 3)
- What are Jacobsen epoxidation and Shi epoxidation. Give examples (U, CO 1)
- Write a short note on chemo- & regioselective protection and deprotection. (A, CO 4)
- Explain Birch Reduction with mechanism (U, CO 1)
- Devise a synthetic strategy for the following compound applying retrosynthetic analysis.



- With the help of protecting group chemistry propose a synthetic strategy for the conversion of S-Serine into its R-enantiomer. (Cr)
- Write notes on
 - Wohl-Ziegler reaction
 - Mitsunobu reaction
 (R, CO 2)

18. Complete the following reaction with mechanism?



(A, CO 2)



(2 x 6 = 12)

PART C

Answer any 2 questions

Weights: 5

19. Discuss the importance of supramolecular interactions in medicine giving special emphasis on controlled and targeted drug releases. (A, CO 4)
20. Write short notes on i) Nazarov cyclization ii) Bergman cyclization iii) Pauson-Khand reaction and iv) Robinson annulation (A)
21. Write brief notes on the reducing properties and synthetic applications of the following reagents. (U, CO 1)
- i). Selectrides ii). Trialkylsilanes iii). Trialkylstannanes
22. Explain the mechanism of the following reactions: (R, CO 2)
- a) Heck reaction
 b) Stille coupling
 c) Brook rearrangement
 d) Sakurai reaction

(5 x 2 = 10)

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1	Describe the applications of oxidation and reduction techniques in organic syntheses.	A	3, 4, 12, 14, 21	11
CO 2	Illustrate modern synthetic methods and applications of reagents.	U	7, 17, 18, 22	10
CO 3	Explain different methods for the construction of carbocyclic and heterocyclic ring systems.	U	11	2
CO 4	Understand the principles and applications of protecting groups in chemistry.	U	1, 8, 10, 13, 19	10

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