Reg. No…….. Name…… **25P319**

M.Sc. DEGREE END SEMESTER EXAMINATION - OCTOBER 2025

SEMESTER – 3: CHEMISTRY/PHARMACEUTICAL CHEMISTRY

COURSE: 24P3CHET10/24P3CPHT10 - ORGANIC SYNTHESES

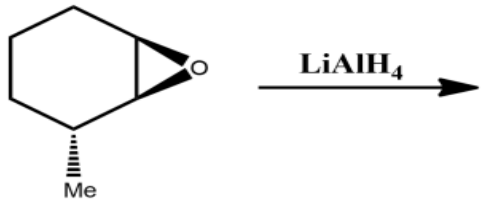
(Regular 2024 Admission))

Time: Three Hours Max. Weights: 30

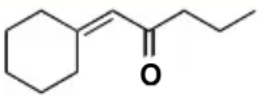
PART A

Answer any 8 questions **Weight: 1**

1. Discuss the mechanism of MPV reduction (A, CO1)
2. Predict the product and stereochemistry of the reaction. (A, CO1)



3. Write a note on Wilkinson catalyst. (U, CO1)
4. Propose a reaction for the preparation of carbonyl compounds from nitro compounds. Give an example. (A, CO2)
5. Explain the mechanism of Henry reaction. (U,CO2)
6. Discuss the mechanism of Mitsunobu reaction. (U,CO2)
7. Explain ring closing metathesis. (U, CO3)
8. Discuss any two protection methods for –COOH group. (A,CO4)
9. Propose a retrosynthetic method for the following compound (A, CO5)



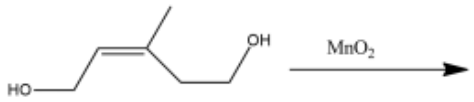
10. Discuss the concept of host –guest chemistry in supramolecular chemistry. (U,CO6)

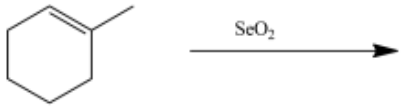
(1 x 8 = 8)

PART B

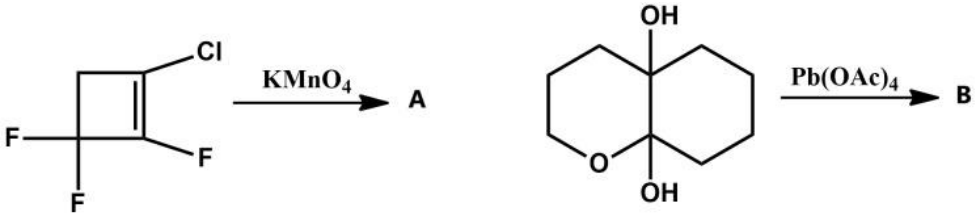
Answer any 6 questions **Weights: 2**

11. Complete and explain the reaction scheme. (A, CO1)

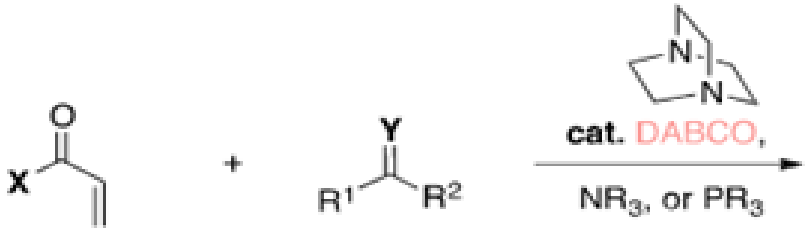
(i) 

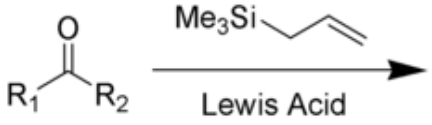
(ii) 

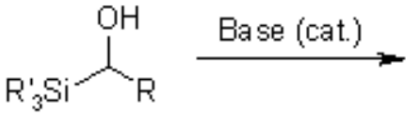
12. Predict the compounds A and B. Explain the conversions with mechanisms. (A, CO1)



13. Complete the following reactions and give the mechanisms: (A, CO2)

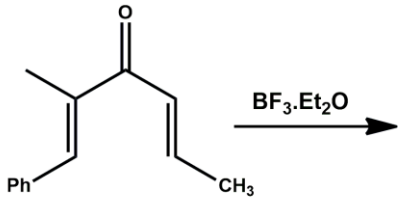
i) 

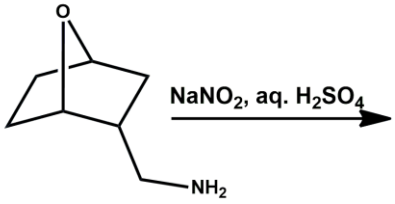
ii) 

iii) 

14. What is Pauson-Khand reaction? Explain with the mechanism. (U, CO3)

15. Complete and explain the reaction scheme. (A, CO3)

a) 

b) 

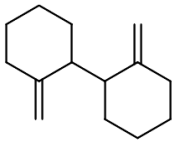
16. Explain any four protecting groups for alcohols along with the deprotection strategies. (U, CO4)
17. Write a note on solid phase peptide synthesis. (U, CO4)
18. Discuss retrosynthesis of luciferin. (U, CO5)

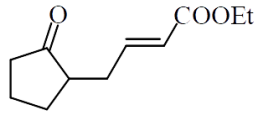
(2 x 6 = 12)

PART C

Answer any 2 questions **Weights: 5**

19. (a) Compare the Prevost and Woodward hydroxylations. Give the mechanisms. (U, CO1)
(b) Discuss the mechanism of Sharpless and Jacobson epoxidation reactions.
20. Discuss the mechanism of the following reactions
    a) Tischenko reaction b) Ugi Reaction c) Sonogashira coupling. (U, CO2)
21. Perform a retrosynthesis for the following compounds. Suggest the synthetic route. (A, CO5)

a) 

b) 

22. Write notes on a) Cyclodextrins b) Crown ethers c) Cryptands d) carcerand e) cyclophanes (U, CO6)

(5 x 2 = 10)