Reg. No ..... Name **22P342**

M. Sc. DEGREE END SEMESTER EXAMINATION : OCTOBER 2022

SEMESTER 3 : CHEMISTRY / PHARMACEUTICAL CHEMISTRY

COURSE : **21P3CHET10 / 21P3CPHT10 : ORGANIC SYNTHESES**

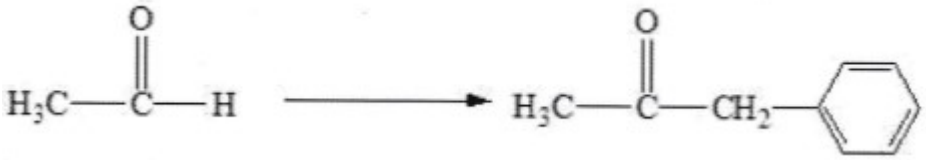
(For Regular - 2021 Admission)

Duration : Three Hours Max. Weights: 30

PART A

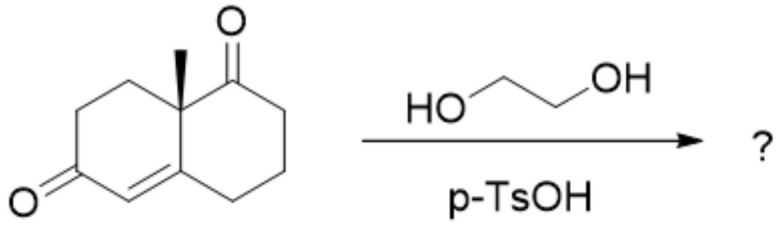
Answer any 8 questions **Weight: 1**

1. How can you bring about the following reaction? ()

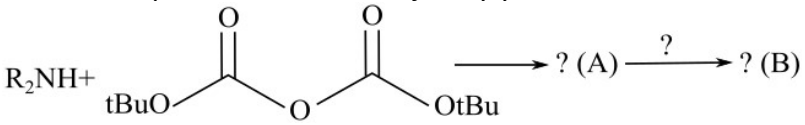


2. Give the synthetic equivalents for the following synthons. ()

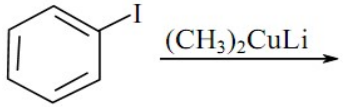
3. Predict the product of the following reaction. Justify your answer. (A, CO 4)



4. Explain the role of trialkylsilyl derivative in Peterson Olefination reaction. ()
5. What is Baker's yeast? Give one synthetic application. (U, CO 1)
6. What is Birch Reduction ? (U, CO 1)
7. Predict the product A & B and justify your answer. (An, CO 4)



8. Explain Volhardt cyclization method (U)
9. Write the product (Cr, CO 2)



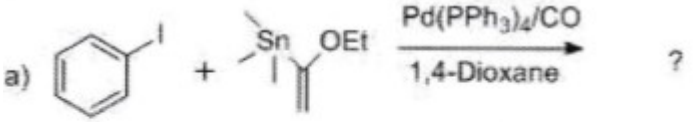
10. What are tweezers? Give an example (U, CO 4)

(1 x 8 = 8)

PART B

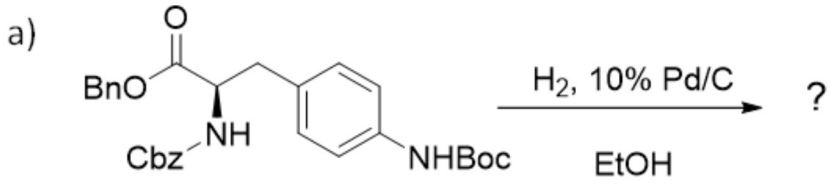
Answer any 6 questions **Weights: 2**

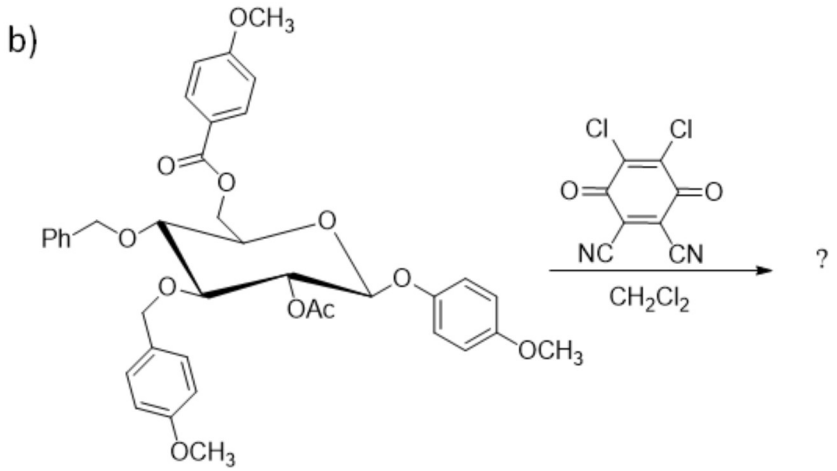
11. Complete the following reaction with mechanism?



(A, CO 2)

12. The major product formed in the following reaction is





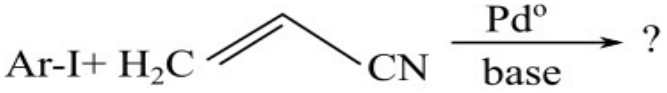
(E, CO 4)

13. Write a note on Pauson-Khand reaction. (U, CO 3)

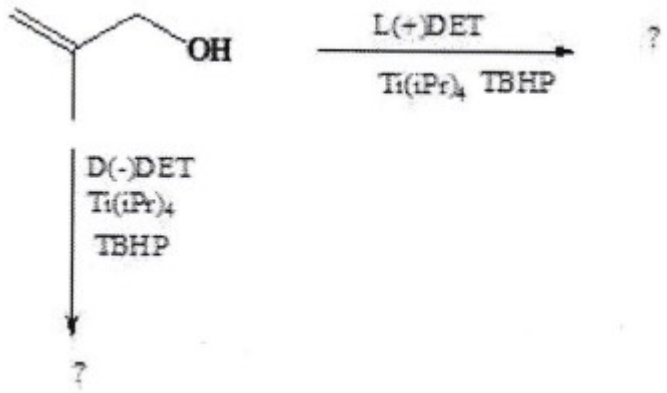
14. Apply retrosynthetic analysis and devise a synthetic route for d-luciferin. (R, CO 5)

15. Write the intermediates, the product and explain the mechanism of the following reaction?

(An, CO 2)



16. Give the products & write the mechanism



(A, CO 1)

17. Show all the steps involved in the synthesis of dipeptide, Gly-Ala. (A, CO 4)

18. Discuss the structure and synthetic uses of selectrides and sodiumcyanoborohydride. (U, CO 1)

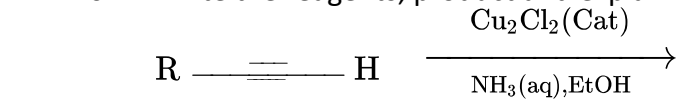
(2 x 6 = 12)

PART C

Answer any 2 questions **Weights: 5**

19. Write briefly on the oxidising agents
a) Ag_2CO_3 b) RuO_4 c)OsO_4 d) O_3 (U, CO 1)

20. Write the reagents, product and explain mechanism the following reaction?



(A, CO 2)

21. Write short notes on i) Nazarov cyclization ii) Bergman cyclization iii) Pauson-Khand reaction and iv) Robinson annulation (A)

22. Discuss the structure, shape and applications of calixarenes, cryptands and cyclodextrins. (U, CO 4)

(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	5, 6, 16, 18, 19	11
CO 2	Illustrate modern synthetic methods and applications of reagents.	U	9, 11, 15, 20	10
CO 3	Explain different methods for the construction of carbocyclic and heterocyclic ring systems.	U	13	2
CO 4	Understand the principles and applications of protecting groups in chemistry.	U	3, 7, 10, 12, 17, 22	12
CO 5	Apply retrosynthetic analysis to design the synthesis of a target molecule.	U	14	2

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