18P317 (Pages: 3) Name……..

Reg. No……..

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2019

(Regular/Supplementary/Improvement)

(CUCSS-PG)

(Chemistry)

CC15P CH3 C11 - REAGENTS AND TRANSFORMATIONS ON ORGANIC CHEMISTRY

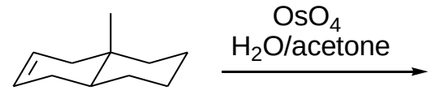
(2015 Admission onwards)

Time: Three Hours Maximum: 36 Weightage

Section A

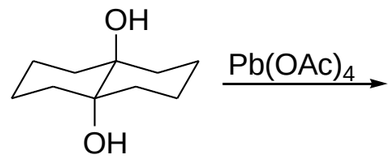
Answer ***all*** questions. Each question carries 1 weightage.

1. What is Sharpless asymmetric epoxidation?
2. Predict the major product with stereochemistry of the following reaction. Rationalize your answer by writing its mechanism.



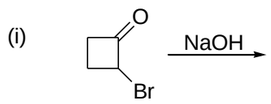
3. What is Noyori asymmetric hydrogenation?
4. Write down the products of the following reactions.

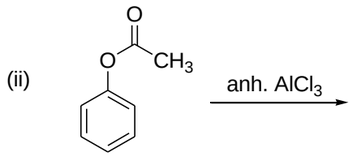
5. What do you understand by the term ‘umpolung’? How is it formed?
6. Giving the mechanism, predict the product of following reaction.



7. What do you understand by a graft copolymer? Give an example.
8. What is Ziegler-Natta polymerization? Which type of mechanism it belongs to?
9. What are Aziridines? How will you synthesize it?
10. Thiophen is found to be as aromatic as benzene. Validate the statement.
11. Differentiate between [1,2]- and [2,3]-Wittig rearrangement reactions.

12. Identify the products of the following reactions.

(i) 

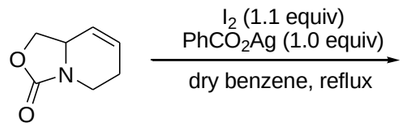
(ii) 

(12 x 1 = 12 Weightage)

Section B

Answer any ***eight*** questions. Each question carries 2 weightage.

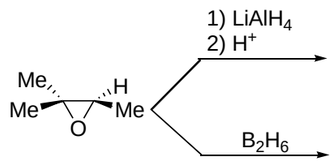
13. Explaining the mechanism, find out the major product with stereochemistry of the reaction:



14. What is Baeyer-Villiger Oxidation reaction? Explain its mechanism.

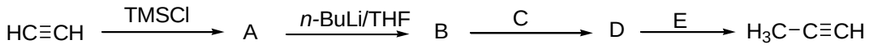
15. Illustrating mechanism, explain the synthetic importance of MPV reduction.

16. Write down the major product of following reactions. Give reason in each case.



17. Emphasizing examples, explain the synthetic importance of PTCs.

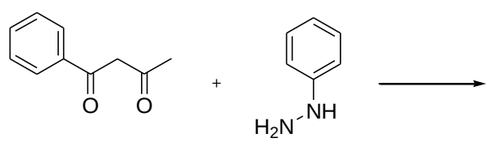
18. Complete the following reaction sequence by identifying A, B, C, D and E. Explain.



19. Explain the method of sequence determination of peptides and proteins.

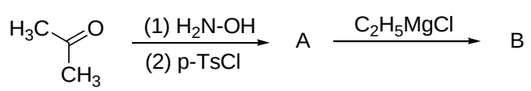
20. Give a brief account on cross-linked and network polymers.

21. What would be the major product of the following reaction? Rationalize.



22. Write down any one of the synthetic methods for oxazole.

23. Giving the mechanism, identify the products A and B of the following reaction.



24. What is benzyl-benzilic acid rearrangement reaction? Explain its mechanism.

(8 x 2 = 16 Weightage)

Section C

Answer any ***two*** questions. Each question carries 4 weightage.

25. Explain any one synthetic method each for the following heterocyclic compounds.

(i) Adenine (ii) Uracil (iii) Caffeine (iv) Quinoline

26. Describe the mechanisms of the following:

(i) Heck reaction (ii) Sonogashira cross-coupling reaction

(iii) Stille cross-coupling reaction (iv) Suzuki coupling reaction

27. Discuss in detail:

(a) Merrifield solid phase peptide synthesis. (1 wt.)

(b) Structure of cellulose and starch. (1 wt.)

(c) Free radical polymerization and ionic polymerization. (2 wt.)

28. (a) Illustrating examples, explain the synthetic applications of:

(i) DABCO (ii) 9-BBN. (2 wt.)

(b) Explain the synthetic importance and mechanism of:

(i) Birch reduction (ii) Wolff-Kishner reduction. (2 wt.)

(2 x 4 = 8 Weightage)

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