



16UCH6MC03– SYNTHETIC ORGANIC CHEMISTRY AND HETEROCYCLIC COMPOUNDS

Date: 10-04-2019

Dept. No.

Max. : 100 Marks

Time: 09:00-12:00

PART A

ANSWER ALL QUESTIONS

(10x2=20)

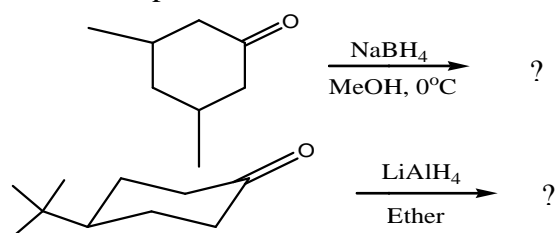
1. What is linear synthesis?
2. How will you protect an aldehydic group? Write the reaction.
3. Expand DIBAL. What is its use?
4. Carbonyl compound + Zn -Hg/ HCl ----->?
5. What are cycloaddition reactions?
6. Write Claisen rearrangement.
7. Pyridine is less aromatic than benzene. Give reasons.
8. Write one method to prepare pyrrole.
9. Draw the structure of 2-methyl quinolene and isoquinolene.
10. What is piperidine?

PART B

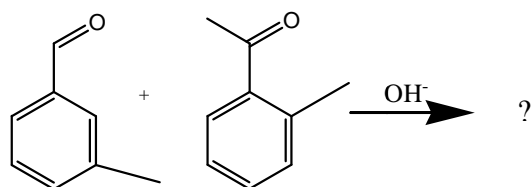
ANSWER ANY EIGHT QUESTIONS

(8x5=40)

11. Explain the terms, activating groups and bridging elements.
12. What is an Umpolung? What is its significance?
13. Substantiate your ideas on retrosynthesis, synthons, synthetic equivalents and target molecule.
14. Explain the mechanism of Birch reduction.
15. Write a note on homogeneous catalytic hydrogenation.
16. Predict the product with mechanism :



17. Electrocyclisation reactions are either ring opening or ring closing. Substantiate your answer with suitable examples.
18. Predict the products with mechanism:



19. Write a note on the preparation of thiophene.

20. Predict the product with mechanism



21. THF is a popular solvent in Organic synthesis. Recap some of the popular reactions of THF.

22. Write a note on the preparation and reactions of dioxan.

PART- C

ANSWER ANY FOUR QUESTIONS

(4 X 10=40)

23. a) Explain the rules and guidelines governing organic synthesis.

b) How is N,N- dipropylamine synthesized? **(5+5)**

24. a) Write a note on linear and convergent synthesis. Which is better among two?

b) Explain the mechanism of Hydroboration - Oxidation reaction with an example.

(5+5)

25. a) Mn(VII) compounds are primarily employed for oxidation reactions. Justify with suitable examples

b) Explain the FMO approach for [4+2] cycloaddition reaction. **(5+5)**

26. a) What are group transfer reactions? Explain with any two examples.

b) Write the classification of heterocyclic compounds. **(5+5)**

27. a) Compare the aromaticity of pyrrole, furan and thiophene. Give reasons.

b) Explain the oxidation and reduction reactions of pyridine. **(5+5)**

28. a) How will you prepare quinolene and isoquinolene by ring closure reactions?

b) Write the preparation and properties of indole. **(5+5)**

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