

Exam. Code : 107402

Subject Code : 2114

B.Sc. (Bio-Technology) Semester—II

BT-4 : ORGANIC CHEMISTRY—B

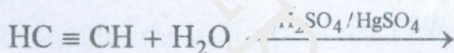
Time Allowed—3 Hours]

[Maximum Marks—40

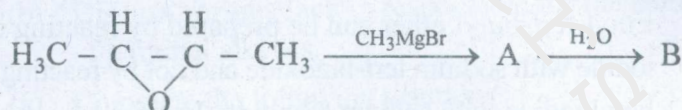
SECTION—A

Note :-- All questions are compulsory.

1. Complete the following reaction :

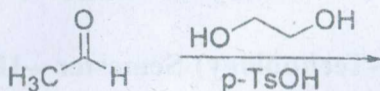


2. How will you convert acetylene to 2-octyne ?
3. Complete the following reaction :



4. Explain Williamson's synthesis of ethers.
5. Why benzaldehyde is less reactive than acetaldehyde towards nucleophilic addition reactions ?

6. Complete the following reaction and provide a suitable mechanism :



7. Acetyl chloride is more reactive towards nucleophilic substitution reaction than ethyl chloride, why ?
8. 2,4,6-trimethylbenzoic acid is difficult to esterify directly. Why ? 1×8=8

SECTION—B

Note :— Attempt any **FIVE** questions. All questions carry equal marks.

9. Metal ammonia reduction of alkyne proceeds via anti-addition. Explain.
10. Alkynes are more reactive than alkenes towards nucleophilic addition reactions. Explain.
11. Ethyl-tert-butyl ether can be prepared by reacting ethyl iodide with sodium tert-butoxide and not by reacting tert-butyl iodide with sodium ethoxide. Justify.
12. Discuss the mechanism of acid-catalyzed dehydration of alcohols to form ethers.
13. With mechanism, discuss how will you distinguish between 2-pentanone and 3-pentanone ?

14. Provide suitable conditions and mechanism for the following conversion :



15. Write down the base-catalyzed mechanism of hydrolysis of esters.
16. Explain why decarboxylation in malonic acid is facile than acetic acid. 5×4=20

SECTION—C

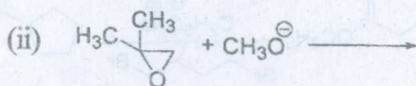
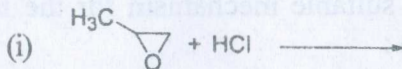
Note :— Attempt any **TWO** questions. All questions carry equal marks.

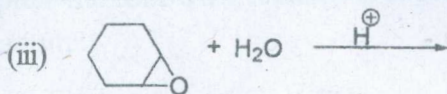
17. (a) Complete the following reaction and provide a suitable mechanism :



- (b) Discuss various factors responsible for the acidity of terminal alkynes. 3

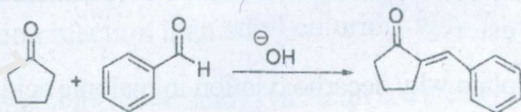
18. (a) Complete the following reactions :





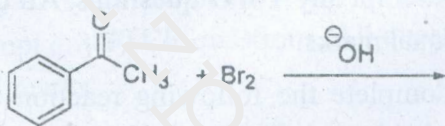
(b) Write a note on Crown Ethers. 3

19. (a) Provide a suitable mechanism for the following conversion :



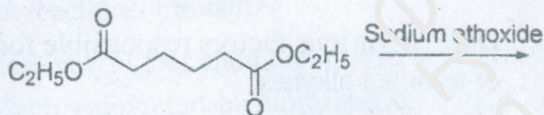
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(b) Complete the following reaction and provide a suitable mechanism :



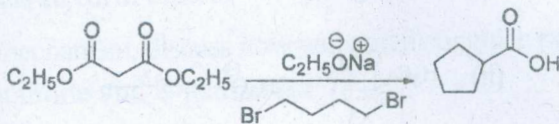
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20. (a) Complete the following reaction and provide a suitable mechanism :



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(b) Provide a suitable mechanism for the following conversion :



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