

(6 pages)

Reg. No. :

Code No. : 7157

Sub. Code : C 31 C

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2010.

Third Semester

Chemistry

ORGANIC CHEMISTRY — II

(For those who joined in July 2008 and afterwards)

Time : Three hours

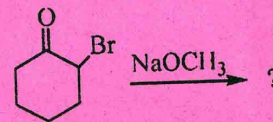
Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL the questions.

1. Predict the product formed when benzyne is trapped using anthracene. Write down the reaction.
2. When is elimination favoured over substitution?
3. Draw the most stable conformer of methylcyclohexane.
4. How many conformation(s) are possible for monosubstituted cyclohexane.

5. Give any two synthetic applications of LiAlH_4 .
6. What is MCPBA? Give any one of its synthetic use.
7. Name the rearrangement involving the reaction of α -pinene with an acid.
8. What is the product formed in the following reaction?



9. What are the products obtained from the hydrolysis of lactose?
10. How many stereocenter(s) are present in lysergic acid? Also label the same.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Provide the mechanism of ' $\text{S}_{\text{N}}1$ ' and ' $\text{S}_{\text{N}}2$ ' reactions and explain how they are differing from with $\text{S}_{\text{N}}1$ and $\text{S}_{\text{N}}2$ reactions.

Or

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- (b) Explain the orientation and reactivity of aromatic substrate in E1CB reactions by taking suitable examples.

12. (a) Define and differentiate configuration and conformation with illustrations.

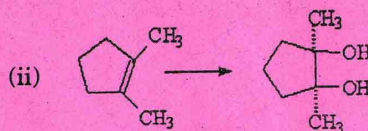
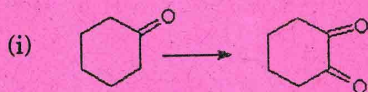
Or

- (b) Write short notes on the conformations of cyclohexane.

13. (a) Illustrate Woodward-Prevost hydroxylation reaction.

Or

- (b) Provide a suitable reagent for the following reactions :



14. (a) Give the mechanism of Sommelet-Hauser rearrangement with an example.

Or

- (b) Give a brief account on Benzil-Benzilic acid rearrangement.

15. (a) Give the synthesis of morphine.

Or

- (b) Write down the synthesis of lysergic acid.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

16. (a) Discuss the mechanism of S_Ni and S_Ni' . Explain the stereochemistry involved in these mechanisms.

Or

- (b) Discuss the mechanism of S_NAr2 and give a comparative account with S_NAr1 and Benzyne mechanisms.

17. (a) Explain how the conformations of substrates influence the reactivity with any four examples.

Or

- (b) Discuss the conformations and stabilities of dimethyl-cyclohexanes.
18. (a) Explain the synthetic applications of B_2H_6 giving any four examples.

Or

- (b) Explain the synthetic utility of OsO_4 and NBS.
19. (a) Explain the mechanism of Hoffmann-Martius rearrangement.

Or

- (b) Elaborate the mechanism of Demjanov and Fisher-Hepp rearrangement.

20. (a) Write the hydrolysed products of lactose and maltose with necessary reactions.

Or

- (b) Discuss the stereochemistry of morphine.
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