

(6 pages)

5556/MC6

MAY 2006

ORGANIC CHEMISTRY — II

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

UNIT I

1. (a) Fries rearrangement is intermolecular. Prove that statement. (2)

(b) Illustrate S_Ni reaction with an example. (2)

2. (a) Write the mechanism of the rearrangement involving

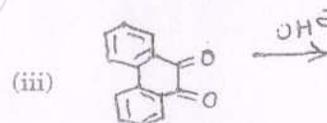
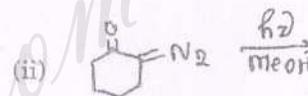
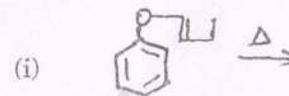
(i) An electron deficient oxygen atom.

(ii) An internal nucleophilic substitution. (3 + 3)

Or

(b) Write a short account of conformations of decalins. (6)

3. (a) Name the rearrangement and predict the product giving mechanism.



(4 + 3 + 3)

Or

(b) Discuss the conformations and stability of mono and di-substituted cyclohexanes. (10)

UNIT II

4. (a) Distinguish between fluorescence and phosphorescence. (2)

(b) Give one example each for a [1,3] and [3,3] sigmatropic rearrangement. (2)

5. (a) Write briefly on Paterno-Buchi reaction. (6)

Or

(b) Write a short account of Woodward-Hoffmann rules. (6)

6. (a) Discuss Type I and Type II photo oxidations with suitable examples. (5 + 5)

Or

(b) Construct a correlation diagram and discuss the disrotatory and conrotatory interconversion of cyclobutene-butadiene system. (10)

UNIT III

7. (a) What do you mean by synthon? Write two synthons for a carbonyl group. (2)

(b) Illustrate 1,2-carbonyl addition with a suitable example. (2)

8. (a) Discuss the convergent approach to total synthesis. (6)

Or

(b) Indicate the uses of activating and protecting groups in organic synthesis. (6)

9. (a) Outline a route for the total synthesis of 2,4-dimethyl-2-hydroxypentanoic acid. (10)

Or

(b) Write short notes on :

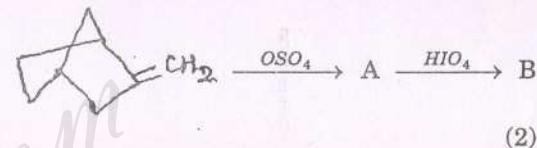
(i) Retrosynthetic analysis

(ii) Umpslung synthesis. (5 + 5)

UNIT IV

10. (a) What is Jone's reagent? Give its important use. (2)

(b) Predict the product with mechanism.



11. (a) Explain why?

(i) LDA is the best reagent for ester enolate formation than the strong base like amide ion.

(ii) chromic acid oxidises axial alcohols more faster than equatorial alcohols in rigid ring system. (3+3)

Or

(b) What is Wilkinson catalyst? Give its applications. (6)

12. (a) Write short notes on :

(i) Crown ethers.

(ii) Applications of peracids.

(iii) Prevost and Woodward hydroxylation. (3 + 3 + 4)

Or

(b) Give the synthetic applications of the following reagents :

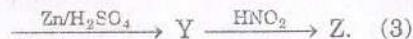
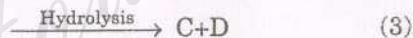
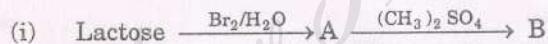
- (i) DMSO
- (ii) Na/Liq NH₃
- (iii) DDQ (3 + 3 + 4)

UNIT V

13. (a) What happens when terpenoids are subjected to thermal decomposition? Indicate the molecular formulae of sesquiterpene and diterpene. (2)

(b) What are amino sugars? Give two examples. (2)

14. (a) Predict the product



Or

(b) Bring out the differences between starch and cellulose. (6)

15. (a) Elucidate the structure of lactose. (10)

Or

(b) Give a detailed account of Biosynthesis of terpenoids. (10)