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Reg. No. : .....

Name : .....

First Semester M.Sc. Degree Examination, May 2024

Chemistry/Analytical Chemistry/Applied Chemistry/Polymer Chemistry

CH 212/CL 212/CA 212/PC 212 : ORGANIC CHEMISTRY I

(CH 212/CL 212/CA 212 : 2016-2019 Admission,
PC 212 : 2018-2019 Admission)

Time : 3 Hours Max. Marks : 75

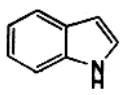
SECTION – A

Answer any **two** among (a), (b) and (c) from each question. Each sub question carries **2** marks.

1. (a) Draw the conformations of decalin and comment on their conformational flexibility.

   (b) What is Cotton effect?

   (c) Write IUPAC name for the following compounds.

   (i)  (ii) 

2. (a) Distinguish between transition sate and intermediate.

   (b) Suggest any two methods for the preparation of free radicals.

   (c) Draw the reaction coordinate diagram for an S_N1 reaction.

3. (a) What is Walden inversion?

   (b) What are non-classical carbocations?

   (c) Describe the benzyne mechanism.

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4. (a) Discuss the E2 mechanism.
   (b) What is Hoffmann elimination?
   (c) Illustrate any one method for the *trans*- hydroxylation of cycloalkenes.

5. (a) What is Swern oxidation?
   (b) What is Sommelet reaction?
   (c) What is Elbs persulphate oxidation?

(10 × 2 = 20 Marks)

SECTION – B

Answer **either** (a) or (b) from each question. Each sub question carries **5** marks.

6. (a) Discuss the E2 elimination of menthyl and neomenthyl chloride.
   (b) Explain octant rule.

7. (a) How carbenes are generated? Explain their reactions.
   (b) Explain the formation and reactions of nitrenes.

8. (a) Explain
      (i) Anchimeric assistance
      (ii) S_Ni mechanism.
   (b) Discuss the mechanism of aromatic electrophilic substitution reactions.

9. (a) Explain mechanism for the following reactions:
      (i) Benzoin condensation
      (ii) Reformatsky reaction.
   (b) Explain the mechanism for the following reactions:
      (i) Perkin condensation.
      (ii) Wittig reaction.

10. (a) Write a note on the synthetic applications of DIBAL.
    (b) Explain Rosenmund reduction.

(5 × 5 = 25 Marks)

SECTION – C

Answer any **three** questions. Each question carries **10** marks.

11. What are the different kinds of molecules display optical activity? Illustrate with examples.

12. Discuss about the structure, stability, formation and reactions of carbocations and carbanions.

13. Explain the different mechanisms for ester hydrolysis.

14. Discuss Cram's rule and its Felkin-Ahn modification.

15. Write a note on
    (a) Oxidative coupling of phenols.
    (b) Oxidation using lead tetraacetate.
    (c) Lindlar catalyst.
    (d) McFadyen-Stevens reaction.

(3 × 10 = 30 Marks)

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