Sr.No.14062

Exam Code: 210402
Subject Code : 4948

M.Sc. Chemistry - 2nd Semester

(2721)

Paper : Course-IX Organic Reaction Mechanism-II

Time allowed: 2 hrs. **Max. Marks: 50**

Note: There are EIGHT questions of equal marks. Candidates are required to attempt any FOUR questions.

Section A

1 a) Explain the effect of neighbouring group on kinetics of organic reaction by taking four examples? b) Give different methods to restrict auto-oxidation? (9½, 3)

2 a) Discuss the effect of switching of non polar solvent to polar solvent on kinetics of any free radical substitution reaction?
b) Why NBS is the preferred reagent to perform allylic halogenations? (7½, 5)

Section B

3 a) Provide the reagents, reaction conditions and mechanism of controlled hydrogenation of naphthalene. b) Discuss mechanism of hydroboration reaction? Why this reaction is highly regioselective? (6¼, 6¼)

4 a) Give the suitable metal hydride reagent for reduction of unsaturated carbonyl compounds? Depict the reaction mechanism and assign reasons for your choice
b) Why Sharpless asymmetric epoxydation is synthetically important? (6¼, 6¼)

Section C

5 Discuss the formation of all the possible products using any α-haloester as the starting material under two different base catalyzed condensation reactions. You can select any other reactant. Provide detailed information about the reaction conditions and reagents leading to formation of products in each case. Discuss mechanism of both the transformations? (12½)

6 a) Explain the mechanism of Michael addition. How the reaction is affected by switching electron deficient Michael donor with electron rich Michael donor in a hypothetical reaction?
b) Discuss synthetic utility of Wittig reactions? (6¼, 6¼)

Section D

7 Enlist all the possible oxidized products in i) Anthracene ii) Benzophenone iii) ketals. Give the name of agents and reaction conditions to achieve these products through selective pathways. (12½)

8 a) Write detailed mechanisms for selective reduction of i) benzamide ii) p-nitrobenzoic acid including all reaction intermediates.

b) What is the synthetic utility of ruthenium tetraoxide? (7½, 5)

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