



Date: 18-04-2018
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

Part-A

Answer ALL questions.

(10 x 2 = 20)

- Predict suitable synthon and synthetic equivalents for the following:
a) acetyl acetone b) 2-butene
- “The effect of peroxide is not observed in the addition of HCl to propene.” Justify.
- Prove with an example that LDA is a non-nucleophilic base.
- How is convergent synthesis superior over linear synthesis?
- What is Brook rearrangement? Give an example.
- Give an example for SeO₂ oxidation.
- Why are group transfer reactions neither cycloaddition nor sigmatropic rearrangement?
- What is Alder’s endo rule?
- Draw Jablonskii diagram and label the processes.
- Write the photodegradation reaction of propylacetate.

Part-B

Answer any EIGHT questions.

(8 x 5 = 40)

- Analyse retrosynthetically the following compounds and suggest suitable forward synthesis:
(a) 1-phenylethanol (b) butanone
- Explain stereospecific and stereoselective reactions with suitable examples.
- Illustrate with an example the use of protection and deprotection of alcohols and amine functional groups in the organic synthesis.
- Discuss the stereochemical aspect of the mechanism of Ziegler-Natta polymerisation.
- Give the mechanism for the DCC and DMAP (cat.) mediated esterification reaction.
- Explain the use of silyl reagent as protecting group for alcohols.
- Compare the strength of reduction of LiAlH₄ and NaBH₄ towards carbonyl and carboxyl derivatives.
- Write the mechanism of (i) Sommelet oxidation and (ii) Leucart reaction.
- Discuss the reaction mechanism of p,p-benzidine rearrangement. How does it also yield o,p-benzidine and o,o-benzidine rearranged products?

20. Draw the correlation diagram for the electrocyclicization of 1,3-butadiene by conrotation. Predict whether the reaction is feasible thermally or photochemically.
21. Discuss the photochemistry of cyclic α,β -unsaturated carbonyl compounds.
22. How does Barton reaction take place in steroids? Explain with an example.

Part-C

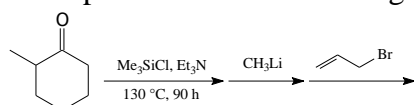
Answer any FOUR questions.

(4 x 10 = 40)

- 23a. Explain the use of FGI in retrosynthetic analysis of (i) 1-phenylpropene and (ii) N-methylethanamine. (4 + 4)

b. Explain Umpolung concept with suitable example. (2)

- 24a. Predict the product for the following reaction.



b. Give the applications of propan-1,3-dithiol as protecting group.

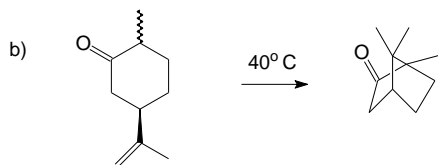
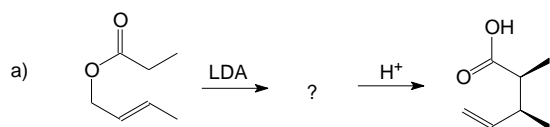
- 25a. Write note on the stereochemistry of Wittig reaction.

b. Explain the Starks extraction mechanism of phase transfer catalysis.

- 26a. Compare the oxidation of primary alcohol in presence of (i) Jones reagent and (ii) PCC. (6)

b. Discuss the mechanism of electroreduction of nitro compounds with suitable example. (4)

- 27a. Write the mechanism of following reactions. (3+3)



b. Explain the intramolecular cycloaddition reaction with an example. (4)

- 28a. Illustrate the photochemical rearrangement reaction of 4,4-diphenylcyclohexenone. (5)

b. Derive Stern Volmer expression. (5)

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