

Roll No.

Total Pages : 5

1787/M

M-35/2051

**MODREN SYNTHETIC REACTIONS AND
REARRANGEMENTS**

Paper-423

Semester-IV

Time allowed : 3 Hours] [Maximum Marks : 55

Note: Attempt five questions selecting two questions each from sections A carrying 8 marks and B carrying 8½ marks each. Section C consisting of 11 short answer type questions carrying 2 marks each.

SECTION-A

1. (a) Discuss the Hofmann-Löffler-Freytag reaction for the formation of piperidines and outline the mechanism. 4
- (b) Write the product and mechanism of

reaction between 1-octanol and lead tetraacetate. 4

2. (a) How crown ethers are used as phase transfer reagents? 4
- (b) Explain the formation of cyclobutanol from photolysis of ketones. 4
3. (a) What are the advantages of Ruthenium oxide in organic synthesis. 4
- (b) Discuss Peterson alkenylation reaction for the synthesis of -hydioxysilane. 4
4. (a) Give two synthetic applications of lithium organocuprates. 4
- (b) Discuss photocyclisation reaction of acyclic conjugate triene (2E, 4Z, 6E-octatriene). 4

SECTION-B

5. (a) Discuss the base catalysed rearrangement involving carbanion in cyclopropane derivatives. 4

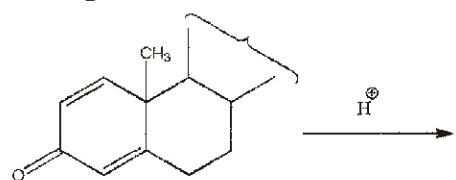
(b) Provide a reaction that involves rearrangement having free radical intermediate in cyclobutene derivative. 4½

6. (a) Outline the mechanism of conversion of isoboreneol to camphene. 4

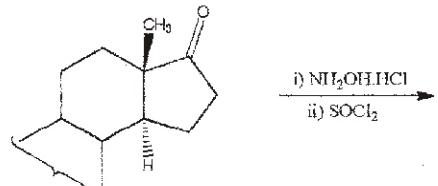
(b) Explain the reaction condition where phenyl vs methyl migration finds importance in pinacol rearrangement. 4½

7. (a) Explain with an example the Retro-Aldol phenomenon in steroid. 4

(b) Write the product(s) and mechanism in the following: 4½



7. (a) Write the product(s) and mechanism in the following: 4



(b) Giving example discuss acyl group migration in steroids. 4½

SECTION-C

9. (i) Discuss the significance of Barton reaction.

(ii) Write the photolysis product(s) of acetonitrile.

(iii) Provide the uses of thallium(III)oxide in organic synthesis.

(iv) Give an example of protection of hydroxyl group using organosilicon compound.

(v) Differentiate between carbenes and carbenoids.

(vi) How to establish the intermediacy of carbene in a rearrangement?

(vii) Discuss the simplest way to produce radicals for initiation process.

(viii) Define and explain migratory aptitude.

- (ix) Give an example of ring expansion of A in steroids.
- (x) Differentiate between carbonium ion and carbocation.
- (xi) Discuss a reaction involving allylic disposition.

$$11 \times 2 = 22$$