

MB-102

March-2025

M.Sc., Sem.-III

CHE (O) 502 : Chemistry

Organic Chemistry

(Advanced Organic Synthesis)

Time : 2:30 Hours]

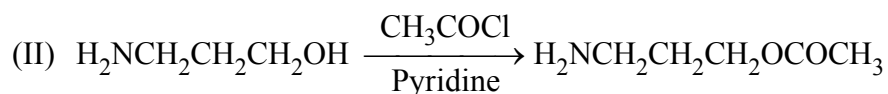
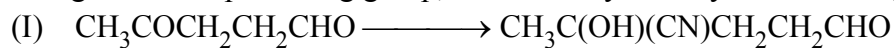
[Max. Marks : 70

1. Answer the following : 14
- (A) Construct the co-relation diagram of (2S + 2S) cycloaddition reaction. 7
- (B) Discuss the FMO method for 4n pi electrocyclic reaction. 7

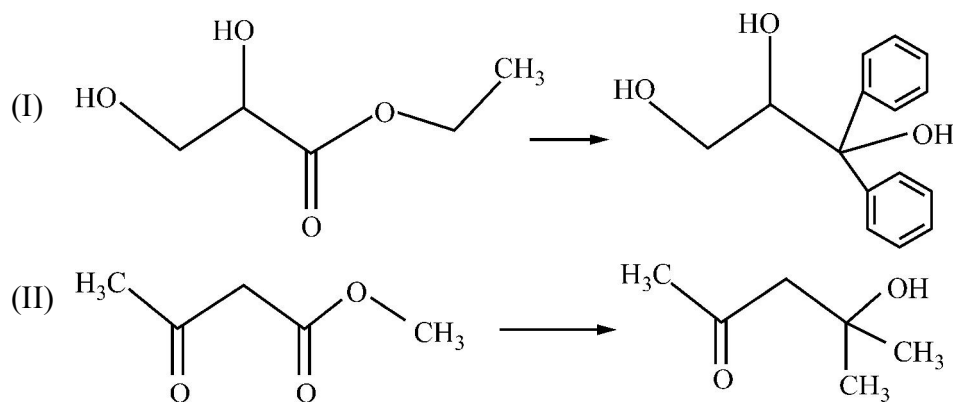
OR

1. (A) Define pericyclic reaction and give its classification. 7
- (B) Write the photochemical and thermal electrocyclic reaction of trans.cis. trans -2, 4, 6- octatriene. 7

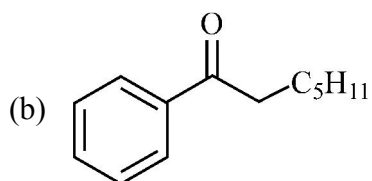
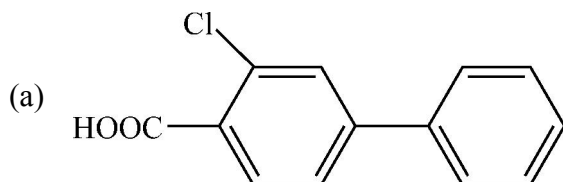
2. Answer the following: 14
- (A) Discuss the principal of protection of alcohols and three reactions of protection of primary alcohols. 7
- (B) Using a suitable protecting group, how would you carry out following reactions ? 7

**OR**

2. (A) Discuss the principal of protection of amines and three reactions of protection of primary amines. 7
- (B) Using a suitable protecting group, how would you carry out following reactions ? 7

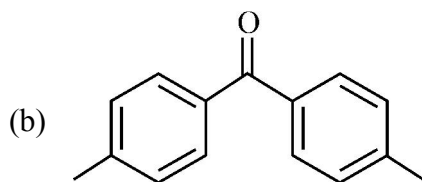
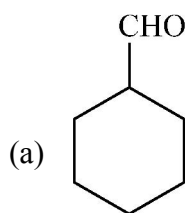


3. Answer the following : 14
- (A) Discuss important order of events in organic synthesis. 7
- (B) Give retrosynthesis and synthesis of the following molecules : 7



OR

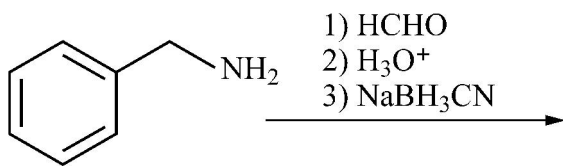
3. (A) Discuss important guidelines for chemo selectivity with example. 7
- (B) Give retrosynthesis and synthesis of the following molecules : 7



4. Answer the following : 14
- (A) Discuss Dakin reaction with its mechanism. 7
- (B) Give the synthetic applications of NH_2NH_2 , DIBALH and Wolff-Kishner reduction. 7

OR

4. (A) Give the synthetic applications of PCC, IBX and RuO_4 . 7
- (B) Complete the reaction with its mechanism. 7



5. Answer the followings in short : (Any **seven**)

14

- (1) Define rotational isomers.
 - (2) Discuss Baeyer's strain.
 - (3) Explain : Cyclopropane is more reactive than cyclobutene.
 - (4) Why protection of group is important in Organic synthesis ?
 - (5) Give name of two reagents with structures can be used for the protection of ketone.
 - (6) Give name of two reagents with structures can be used for the protection of aldehyde.
 - (7) What is latent functionality ?
 - (8) Give Nef reaction.
 - (9) Define umpolung with example.
 - (10) Give reduction reaction of nitroso compound.
 - (11) How do you reduce CO to CH_2 and oxidize CH_2 to CO ?
 - (12) Give basic reaction of Swarn oxidation and Bayer-villiger oxidation.
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