



Date: 03-04-2019  
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

**Part-A**

*Answer any FOUR questions.*

**(4 × 10 = 40)**

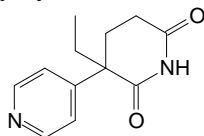
1. Explain the mechanism of following reactions:  
(i) Wittig reaction (ii) Simmon Smith reaction
2. Explain the importance of retrosynthetic analysis in organic synthesis.
3. Discuss any four guidelines of C-C disconnections with examples.
4. Explain the mechanism of following reactions. (5+5)  
(i) Oxidation of 2-butene by  $\text{KMnO}_4$  in basic medium.  
(ii) Wolff Kishner reduction of acetophenone.
5. Write the complete mechanism of electroreduction of nitrobenzene.
6. Draw correlation diagram for the electrocyclicization of 1,3-butadiene by *dis* rotation. Predict whether the reaction is thermally or photochemically allowed.
- 7a. Discuss the mechanism of 1,3-dipolar cycloaddition reactions.
- b. Explain the 1,5-sigmatropic rearrangement reactions with suitable example. (5+5)
8. Explain the following with mechanism: (5+5)  
(i) Barton reaction (ii) di- $\pi$ -methanerearrangement

**Part-B**

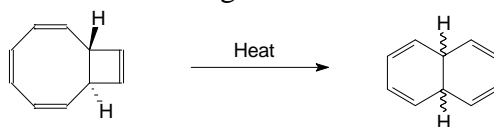
*Answer any THREE questions.*

**(3 × 20 = 60)**

- 9a. Discuss (i) Darzens reaction and (ii) Stobbe reaction.
- b. Explain 1,2- and 1,4-Michael addition reactions with examples. (10+10)
- 10a. Write retrosynthetic analysis and suitably synthesize the following compound:



- b. How does functional group interconversion (FGI) improve organic synthesis? Explain with suitable examples. (10+10)
- 11a. Write a note on protection and deprotection of alcohols and amines.
- b. Explain the mechanism of the following reactions with examples:  
(i)  $\text{NaBH}_4$  reduction (ii) Peracid oxidation (8+12)
- 12a. How will you synthesize cubane?  
b. Discuss the following reactions with suitable examples:  
(i) ozonolysis (ii) Birch reduction (10+10)
- 13a. Discuss benzidine rearrangement reaction for (5,5) and (3,3)-sigmatropic rearrangement.
- b. Predict a suitable mechanism for the following thermal reaction: (12+8)



- 14a. Discuss Norrish type I and type II reactions with suitable examples.
- b. Explain Paterno Buchi reaction in alkenes and alkynes with an example. (10+10)

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