

M-35/2051

Organic Synthesis Paper – 422

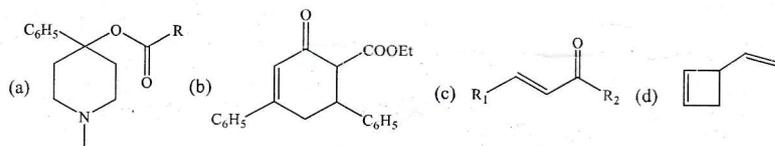
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M.Sc. II (Sem-IV)

Section A

Q.1 Discuss the disconnection approach and suitable synthesis with proper mechanism for the following molecules.

2x4=8



Q.2 a) Describe the cyclization of carbenes and nitrenes. 4

b) Give two applications of organosilicene compounds. 4

Q.3 Discuss complete disconnection and synthesis of cephalosporin. 8

Q.4 Write a short note on the following: 4x2= 8

a) Give example of intramolecular diels alder reaction and ene reaction.

b) Explain the disconnection approach of the friedal craft alkylation reaction.

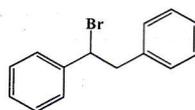
c) Give examples of heterodiene and heterodienophile

d) What do you mean by reversal of polarity?

Section B

Q.5 Give the stereochemical approach for the formation of the cis and trans stilbene from the following:

8.5



Using a) Base catalysed reaction b) pyrolysis under sealed tube

Q.6 Give 4 modified version of phosphorus ylides. Also explain the mechanism of wittig reaction in detail. 8.5

Q.7 Explain (giving proper examples) different factors affecting alkylation reactions. 8.5

Q.8 Write a short note on the following: 8.5

a) Perkin reaction b) Darzen reaction c) Sulphur ylids d) Mannich reaction

Section C

11x2=22

1. Discuss the disconnection approach of cinnamic acid.
2. Justify the role of solvent system in Cand N alkylation method.
3. Give example of photosensitized Diels alder reaction.
4. Discuss the structure and disconnection approach of juvabione.
5. Give one method for the formation of allylic alcohols.
6. Describe major parameters to differentiate C-alkylation vs O alkylation.
7. What is Chugaev reaction. Explain the stereochemistry behind it.
8. Give example for 1, 3-disconnection approach.
9. How will you synthesize tri-substituted alkenes.
10. Describe the mechanism for the synthesis of enamines and alkylation of monocarbonyl compounds using enamine.
11. What do you understand by Arbuzov rearrangement.