



PPP-2062

Seat No. _____

M. Sc. (Sem. II) Examination

April / May - 2016

Chemistry : Paper - 502

(Organic Chemistry)

Time : 3 Hours]

[Total Marks : 70

- Instructions :**
- (1) All questions are compulsory and carry equal marks.
 - (2) The medium of answer in English only.

1 Answer any three :

- (1) Explain reactivity for aliphatic and aromatic substrates at bridgehead.
- (2) Illustrate the effect of solvent on reactivity.
- (3) Discuss ionic acid dichromate mechanisms for oxidation of aldehyde to carboxylic acids.
- (4) What are free radicals ? Discuss the Hunsdiecker reaction proceeds by free radical mechanism with examples.
- (5) Explain Sandmeyer reaction.

2 Answer any three :

- (1) Describe addition of organolithium reagent to carbonyl compounds.
- (2) Discuss principle, mechanism and applications of Knoevenagel reaction.

- (3) What is Mannich base ? Discuss mechanism for the generation of Mannich base through acid and base catalyzed reaction with relevant sequential steps.
- (4) Discuss mechanism and applications of Stobbe reaction.
- (5) Explain Aldol reaction with mechanism.

3 Answer any three :

- (1) Discuss suprafacial and antrafacial cycloaddition reaction.
- (2) Discuss cheletropic reactions.
- (3) Explain FMO method to predict the course of electrocyclic reaction and derive selection rules.
- (4) Construct the correlation diagram of (2S+2S) cycloaddition reactions and show that they are thermally forbidden but photo chemically allowed process.
- (5) Classify pericyclic reaction and define each of them giving suitable illustration.

4 Answer any three :

- (1) Discuss principle, mechanism and applications of Claisen rearrangement.
- (2) Explain E_{1cb} reaction with supporting evidences.
- (3) Discuss the stereo selectivity, stereo specificity and region selectivity of E_2 reaction.
- (4) Explain orientation of the double bond with example.
- (5) Discuss pyrolytic elimination with suitable illustration.

- 5 Answer any seven questions of the following :
- (1) Define eclipsing effect in E_2 elimination with one example.
 - (2) Define Neighbouring group assistance with example.
 - (3) What is fluxional tautomerism ?
 - (4) Define Perkin reaction with example.
 - (5) Give two examples of E_1 mechanism.
 - (6) What is Gomberg-Bachmann reaction ?
 - (7) Give two applications of NBS in halogenation reactions.
 - (8) Define Benzoin condensation with example.
 - (9) Define Ene reaction with one illustration.
 - (10) What is LUMO of allylic cation ?
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