



GJ-144001

Seat No. _____

M. Sc. (Sem. IV) Examination

March / April - 2019

MSC0C401 : Advanced Organic Chemistry

Time : 3 Hours]

[Total Marks : 70

- 1 (A) What are pericyclic reaction ? Discuss classification of pericyclic reactions with suitable example of each sub divisions. 7

OR

- (A) Construct the correlation diagram for (4s + 2s) cycloaddition reaction and show that they are thermally allowed while photo chemically forbidden process. Discuss symmetry properties of 1,3-butadiene.
- (B) Discuss the application of FMO method to predict the course of cycloaddition and sigmatropic reaction. Derive selection rules. 7

OR

- (B) Define sigmatropic rearrangement. Explain using-FMO method the (1,5) suprafacial sigmatropic reaction is thermally allowed while the antrafacial sigmatropic reaction is photochemically allowed process.
- 2 (A) Draw projections and discuss Conformational analysis of both 1,3-dimethyl cyclohexane and 1,4-dimethyl cyclohexan. 7

OR

- (A) Discuss the Conformational analysis of dodecalin in detail.
- (B) Giving suitable example, compare the Conformational analysis of heterocyclic compounds with carbocyclic compounds. 7

OR

- (B) Define anometric effect. Give an account on the factors that affect stability of conformations.

- 3 (A) What is oxidation ? Giving mechanism discuss the oxidation of alcohols with suitable examples. 7
- OR
- (A) Discuss the application of Osmium tetroxide and Manganese dioxides as oxidizing agent in Organic synthesis.
- (B) Enlist oxidizing agent for the oxidation of alkene. Discuss any two such oxidiz agents with suitable reaction mechanism. 7
- OR
- (B) What is epoxidation ? Giving mechanism discuss the application of peroxy carboxylic acid in epoxidation of various alkenes.
- 4 (A) Giving evidences discuss the mechanism for the reduction of alkanes. 7
- OR
- (A) Giving evidences discuss the mechanism for the reduction of alkenes.
- (B) Enlist methods for the reduction of carbonyl compounds. Discuss at least two methods for reduction of carbonyl compounds with relevant mechanism. 7
- OR
- (B) Giving reagent and condition discuss mechanism for the reduction of various aromatic nitro compounds.
- 5 Answer the following in brief : 14
- (1) What is node pericyclic reactions ?
 - (2) What is sigmatropic rearrangement ?
 - (3) What is full form of F.M.O theory?
 - (4) Differentiate configuration and conformation.
 - (5) Why pericyclic reactions are known as NO Mechanism reactions ?
 - (6) Define con-rotatory and disrotatory system.
 - (7) Give one example of stereo selective oxidation of C-H bond.
 - (8) $\text{cis-2-butene(s)} + \text{cis-2-butene(a)} \rightarrow$
 - (9) $\text{Ethylene (s)} + \text{cis-2-butene(a)} \rightarrow$
 - (10) What is sharpless epoxidation ?
 - (11) Name the reagent with oxidizes primary, secondary and tertiary amines.
 - (12) How alkenes are reduced to alkanes ?
 - (13) How alcohol are reduced to hydrocarbons ?
 - (14) Give one example of reduction of benzene.