



GDE-1759

Seat No. _____

M. Sc. (Sem. I) Examination

December - 2015

Chemistry : Paper - CHN - 402

(Organic Chemistry)

Time : 3 Hours]

[Total Marks : 70

- Instructions :** (1) All questions are compulsory.
(2) The medium of answers is English Only.

- 1 (a) Answer any two of the following : 10
- (1) Discuss Resonance and hyper conjugation with suitable examples.
 - (2) What is Cross conjugation and Tautomerism? Discuss their application giving suitable example
 - (3) Define Huckel's rule for determining whether a molecule is aromatic. Give at least four examples.
- (b) Answer any one of the following: 04
- (1) Give a detailed account of rotaxanes and catenanes.
 - (2) Discuss Homo aromaticity giving examples.
- 2 (a) Answer any two of the following: 10
- (1) Discuss confirmations of decalines.
 - (2) Give a brief account on Enantiotopic and Diastereotopic group and faces.

- (3) Explain asymmetric synthesis involving by
- Use of Chiral reagent
 - Use of Chiral auxiliaries.
- (b) Answer any one of the following: **04**
- Explain Chirality due to helical shape.
 - Explain stereochemistry of sulphur containing compounds.
- 3 (a) Answer any two of the following: **10**
- Discuss the stability and reactivity of carbocations.
 - Explain Hammonds postulate by giving the example of Hydrobromination of propylene.
 - Discuss methods of determining mechanism of organic reactions.
- (b) Answer any one of the following: **04**
- Explain the impact of Steric effect on reactivity.
 - Derive Taft equation, which takes into account steric effect. Explain terms involved in it.
- 4 (a) Answer any two of the following: **10**
- Give an account on SET mechanism.
 - Give a brief account on nucleophilic substitution at Vinylic carbons.
 - Discuss effect of the reaction medium on nucleophilic substitution.

- (b) Answer any one of the following: 04
- (1) Discuss the effect of the Attacking Nucleophile.
 - (2) Write a note on Anchimeric assistance.

5 Answer any seven questions in 2-4 lines each: 14

- (1) Draw geometrically possible isomers of [10] annulenes.
 - (2) Explain alternate and non alternate hydrocarbons.
 - (3) Define Stereo specific and stereo selective synthesis.
 - (4) What is transition state theory? Explain.
 - (5) Define Optical purity.
 - (6) Define Electrophilic and Nucleophilic migration.
 - (7) Define Phenonium ions.
 - (8) Give any two application of use of NMR spectroscopy in detection of carbocation.
 - (9) Give example of Nucleophilic substitution at trigonal carbon.
 - (10) Giving example define region selectivity.
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