



CHJ-7209 Seat No. _____
M. Sc. (Sem. I) Examination
November - 2019
Chemistry : CHNN - 402
(Organic Chemistry)
(New Course)

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

Instructions :

- (1) This question paper carries four questions.
- (2) Figures to the right indicate marks of the question.

Answer any two of the following :

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- (a) Discuss alternant and non-alternant hydrocarbons. Give a detailed account of catenanes.
- (b) Discuss resonance, Hyperconjugation and Tautomerism with suitable examples.
- (c) Write short note :
 - (i) Types of bonding in Fullerenes.
 - (ii) Aromaticity of Annulenes.

Answer any two of the following :

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- (a) What is Conformation ? Discuss conformational analysis of cyclohexane and decalins.
- (b) Explain stereochemistry of sulphur and phosphorous containing compounds.
- (c) What is the difference between stereospecific and stereoselective reactions ? Discuss optical activity of allenes giving illustrations.

3 Answer any two of the following :

- (a) Give the thermodynamic and kinetic requirements of the reaction. Explain Hammett equation and linear free energy relationship.
- (b) Discuss the stability and reactivity of following :
 - (i) Carbocations
 - (ii) Carbanions
- (c) Derive rate equation which takes into account steric effect. Explain Hard and Soft electrophiles and nucleophiles.

4 Answer any two of the following :

- (a) Discuss effect of the leaving group and solvent on nucleophilic substitution.
- (b) Write short note :
 - (i) Ambident nucleophiles
 - (ii) Anchimeric assistance.
- (c) Explain Sandmeyer and Hunsdiecker reaction.