



PT-003-1104007

Seat No. _____

M. Sc. (Sem. IV) Examination

August - 2020

Organo-Pharmaceutical Chemistry
Paper - C(OP) - 403 : Stereochemistry
(Core)

Faculty Code : 003

Subject Code : 1104007

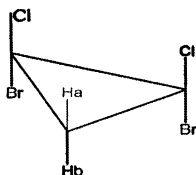
Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

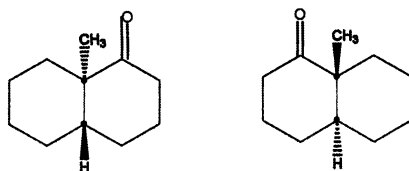
Instructions : (1) All the questions carry equal marks.
(2) Attempt five questions in all.

1 Answer briefly any **seven** from the following : 14

- Differentiate-Prochiral and Prostereo.
- What is Karplus equation?
- Draw and label the methylene hydrogens of ethanol as proR and pro-S.
- Draw structures of three, four and five members fused ring systems which can span both cis as well as trans forms.
- Depict the two faces of acetophenone as Re and Si.
- Explain: Erythrose and threose isomers.
- Explain asymmetric induction.
- Briefly explain the phenomenon of Circular dichroism.
- The relationship between Ha-Hb and Br-Br in the given molecules



(j) Identify relationship between the following molecules :



- 2** Answer any **two** from the following : **14**
- Discuss various conformations of Bicyclo (4.4.0) decane ring system with special reference to symmetry, stability and chirality.
 - Explain the basis of classification of stereoisomers. Discuss enantiomers and diastereomers in detail.
 - What is circular birefringence? Discuss causes of it in a molecule with one example for each.
- 3** Answer the following. : (a,b,c, or a,b)
- What is stereoselectivity? Discuss epoxidation of cis and trans alkenes. **5**
 - Explain NGP and stereo electronic requirement for effective NGP? Give general mechanism. **5**
 - Discuss products formed in reactions of boric acid and acetone with perhydroazulene. **4**
- OR**
- 3** (a) Discuss NGP and molecular rearrangement in substitution reaction of Erythro and Threo isomers of 3-Bromo-2-butanol with Br₂. **7**
- (b) What is Optical Rotatory Dispersion? Discuss positive and negative Cotton effect. **7**
- 4** Answer any **two** from the following : **14**
- Discuss double diastereoselectivity in Aldol condensation.
 - Write a note on LAH reduction of Norcamphor and stability of the products formed.
 - Explain Diastereotopic ligands and faces with example.
- 5** Answer any **two** from the following : **14**
- Write a note on conformational features of N-Methyl piperidine and Quinolizidine ring systems.
 - Explain Tacticity in polymers and discuss stereochemistry of diene polymerization.
 - Discuss dehydrobromination of 2-Bromobutane and explain Curtin-Hemet principle.
 - What is dihedral angle? Discuss how J varies with it and helps to identify cis and trans ring fusion.