647510 MSC4schC0310 Seat No: _____

M.Sc. Semester - 4 (CBCS) Examination

March/April- 2019

STEREOCHEMISTRY

(CORE)

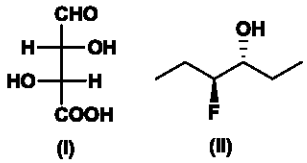
Time: 2:30 Hours **Marks: 70**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q.1 Answer any seven of the following ten questions. **[14 Marks]**

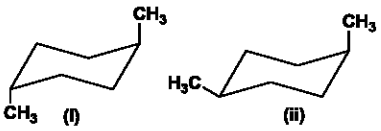
1. Explain: (i) Chirality (ii) Meso compound
2. Differentiate between conformational and configurational isomers
3. Explain syn and anti-nomenclature in aldoxime.
4. Assign appropriate configuration (R/S) at each stereocenter for the following steroisomers:



5. Explain the term: (i) Optical activity (ii) ORD & CD
6. Write Fischer structure of following compounds:

   (a). (D)-Glyceraldehyde

   (b).(R,S)-Tartaric acid
7. Show Gauche interactions in the following compounds:



8. Differentiate anomers and epimers.
9. What is neighboring group participation ? Explain with one example.
10. Explain the effect of electronegative groups on J value with suitable example.

Q.2 Answer any two of the following three questions. **[14 Marks]**

1. Explain diastereoselectivity in aldol reaction.
2. What is ring flipping ? Discuss stereochemistry of 1,2 & 1,3 dimethyl cyclohexanes.
3. Discuss optical isomerism in compound having two asymmetric center.

Q.3 Answer the following questions. **[14 Marks]**

1. Discuss conformational isomerism in cis & trans decalin with example.
2. Explain the effect of conformation on reactivity in E2 elimination of 2-bromobutane.

OR

Q.3 Answer the following questions. **[14 Marks]**

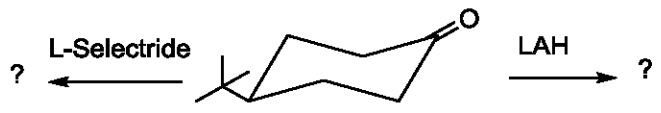
1. Explain variation in the J value with respect to the ring size of the cyclic alkenes.
2. Describe stereoisomerism in Biphenyl compounds.

Q.4 Answer any two of the following three questions. **[14 Marks]**

1. Explain locking groups with suitable example.
2. Write a note on stereo specific reaction.
3. Describe the π and ring diastereomerism with suitable examples

Q.5 Answer any two of the following four questions. **[14 Marks]**

1. Write briefly various methods of resolution
2. Describe optical isomerism in allene derivatives.
3. Explain Felkin-Ahn model for predicting diastereoselctivity in carbonyl compounds.
4. Explain diastereoselctivity and write product of following reaction:



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