

M.Sc.(Chem.) Semester - 4 (CBCS) Examination
April/May-2022 (OLD COURSE)
STEREOCHEMISTRY(CORE)

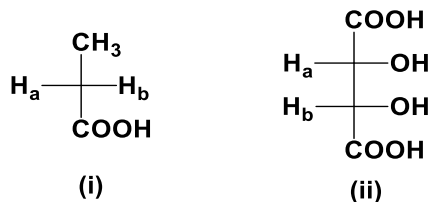
Time: 2:30 Hours**Marks: 70****Instructions:**

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

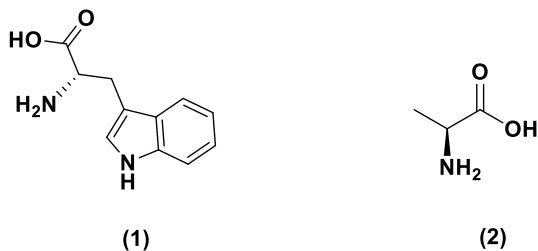
Q.1 Answer any **seven** of the following ten questions.

[14]

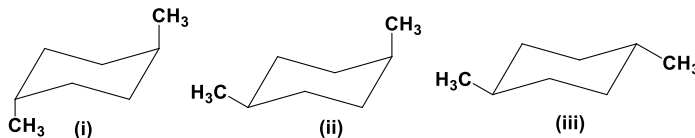
1. Determine whether the hydrogens (H_a & H_b) in the following compounds (i & ii) are Homotopic, Enantiotopic or Diastereotopic?



2. Assign the R & S nomenclature to following molecules.



3. Arrange the following isomers according to their increasing order of stability:



4. Explain the effect of electronegative groups on J value with suitable example.
5. Discuss Conformational analysis of 2-Bromobutane
6. Write Fischer structure of following compounds:
 - (a). (R)-2-Propanol
 - (b). (S,R)-Tartaric acid
7. Define: (i) Enantiomeric excess (ii) Meso compound
8. Differentiate anomers and epimers.
9. Explain neighboring group participation effect of Bromine with one example.
10. Explain conformational isomerism in butane.

Q.2 Answer any **two** of the following three questions.

[14]

1. Explain E/Z nomenclature system with suitable example.
2. Discuss optical isomerism in compound having two asymmetric center.
3. Discuss conformation isomerism and stability of di-substituted cyclohexanes with suitable examples.

Q.3 Answer the following questions. [14]

1. What is molecular dissymmetry? Explain molecular dissymmetry in Biphenyl compounds.
2. Explain the effect of conformation on reactivity in E2 elimination of 2-bromobutane.

OR

Q.3 Answer the following questions. [14]

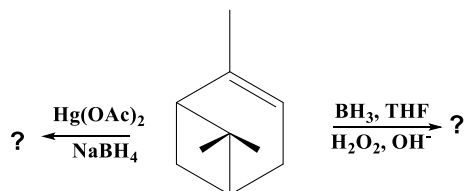
1. Explain variation in the J value with respect to the ring size of the cyclic alkenes.
2. Explain the effect of conformation on reactivity in E2 elimination of 2-bromobutane.

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

1. Describe the geometric isomerism & its nomenclature with suitable examples.
2. Describe the π and ring diastereomerism with suitable examples.
3. Explain locking groups with suitable example.

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

1. Provide product of following two reactions with proper justifications.



2. What is stereo electronic effect? Explain Anomeric Vs Gauche effect.
3. How diastereomeric formation can help in resolution of racemic mixture? Explain with suitable example.
4. Explain Felkin-Ahn model for predicting diastereoselectivity in carbonyl compounds.
