

**M.Sc. Semester - 4 (CBCS) Examination**  
**August/September -2020 [OLD COURSE]**  
**ADVANCED STEREO CHEMISTRY (ELECTIVE - 1)**

Time: 2:00 Hours

Marks: 56

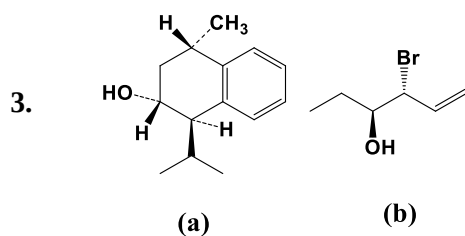
**Instructions:**

1. Figures to the right indicate marks.
2. There are five questions in the question paper.
3. Answer any four of the following questions.

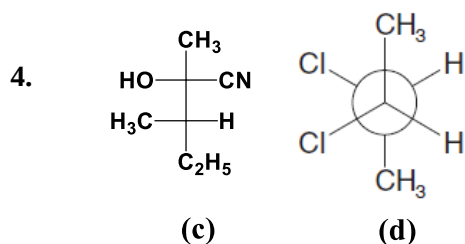
**Q.1 Answer any seven of the following ten questions.****[14 Marks]**

1. Why study of Stereo chemistry is important?
2. Define (a) Stereocenter (b) Enantiomers

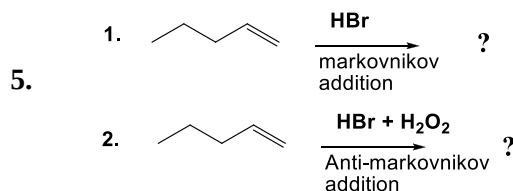
Assign appropriate nomenclature (R/S) for following stereoisomers:



Assign appropriate configuration (R/S) at each stereocenter for the following stereoisomers:

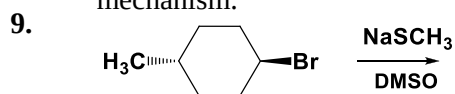


Predict the major product of the following regio-selective reactions:



6. What is anchimeric assistance? Give one example.
7. Why  $\text{S}_\text{N}^2$  reaction is always stereospecific ?
8. Write any two examples of geometrical isomers.

Determine the product of each following reactions and indicate the predominant mechanism.



10. What is ambident nucleophile ? Give example.

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

**[14 Marks]**

1. Explain the symmetry elements with suitable examples.
2. What are meso compounds ? Explain with two examples.
3. What is  $S_N2$  reaction? Describe reaction mechanism, Stereochemistry & various factors affecting  $S_N2$  reactivity.

**Q.3 Answer the following questions.**

**[14 Marks]**

1. Give classification of isomerism with example.
2. Differentiate enantiomers & diastereomers with examples.

**OR**

**Q.3 Answer the following questions.**

**[14 Marks]**

1. Describe stereoisomerism in spirans.
2. Write a note on the mechanism & stereochemistry of mixed  $S_N1$  &  $S_N2$  reaction.

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

**[14 Marks]**

1. Draw various conformations of decalines.
2. How will you measure optical activity ? Explain instrumentation & working of polarimeter.
3. Explain stereospecific polymerization of -olefines.

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

**[14 Marks]**

1. Write a note on rearrangement in allylic system with suitable example.
2. Write a note on the mechanism & stereochemistry of  $S_N1$  reaction.
3. Discuss stereochemistry of amines & nitrogen inversion.
4. Write a note on Isotactic polymer.

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