



Problem Set 4

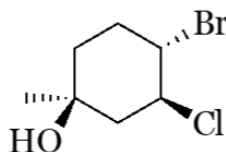
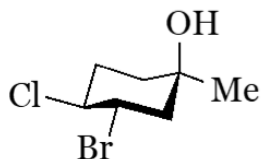
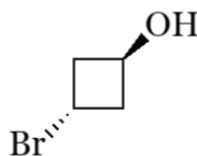
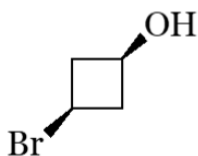
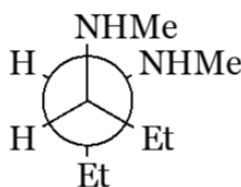
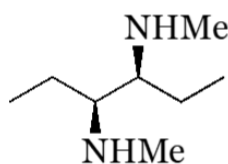
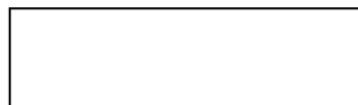
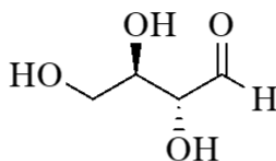
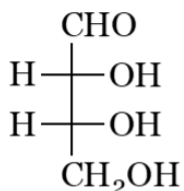
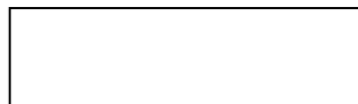
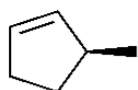
Organic Chemistry 1 (Greenberg)

Fall 2025

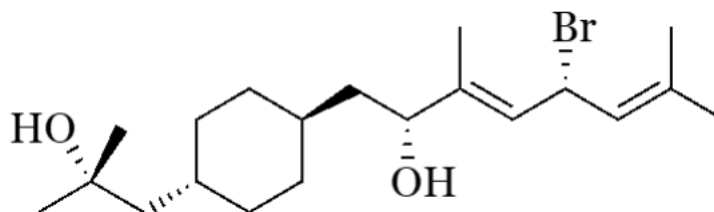
1. Define the following terms and give an example for each.

- a. Chiral center
- b. Conformational Isomers
- c. Constitutional Isomers
- d. Atropisomers
- e. Diastereomers
- f. Enantiomers
- g. Meso

2. Determine if the following pairs of molecules are enantiomers, diastereomers, constitutional isomers, or identical, and determine which molecule(s) is/are meso.



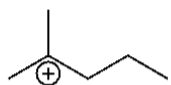
3. Consider the following molecule.



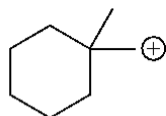
- a. Determine whether each chiral center is in the R or S configuration and assign E or Z to the appropriate double bond(s).

b. How many stereoisomers does this molecule have in total?

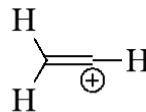
4. Consider the following carbocation containing molecules.



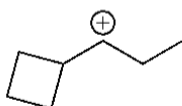
A



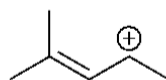
B



C



D



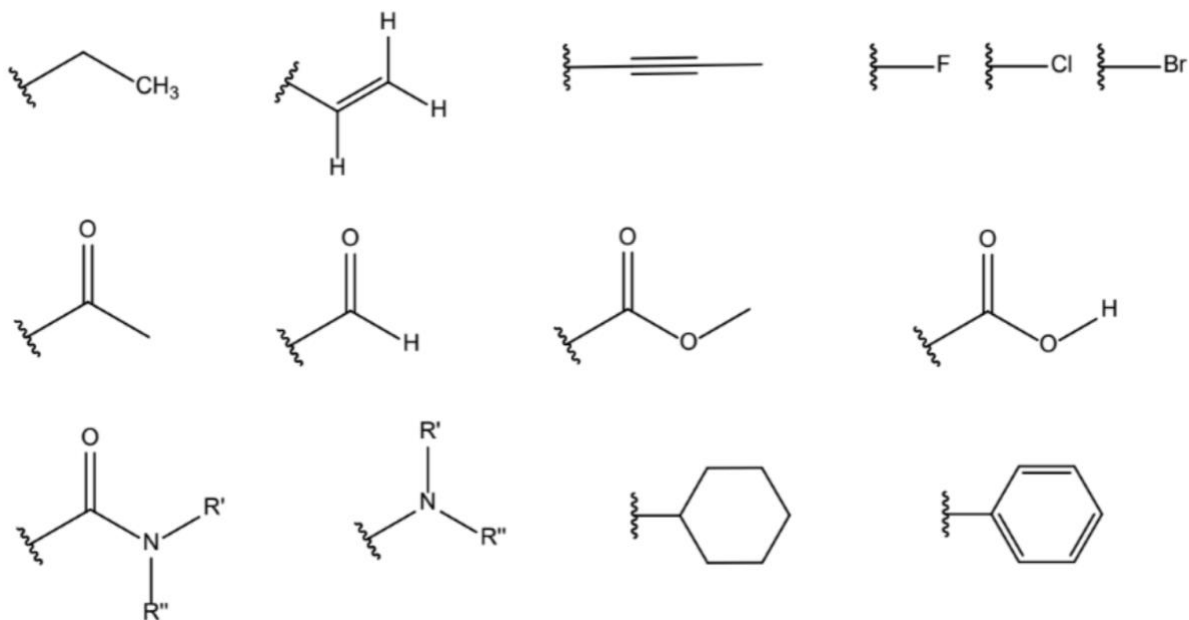
E

a. Rank the carbocations in order of DECREASING stability.

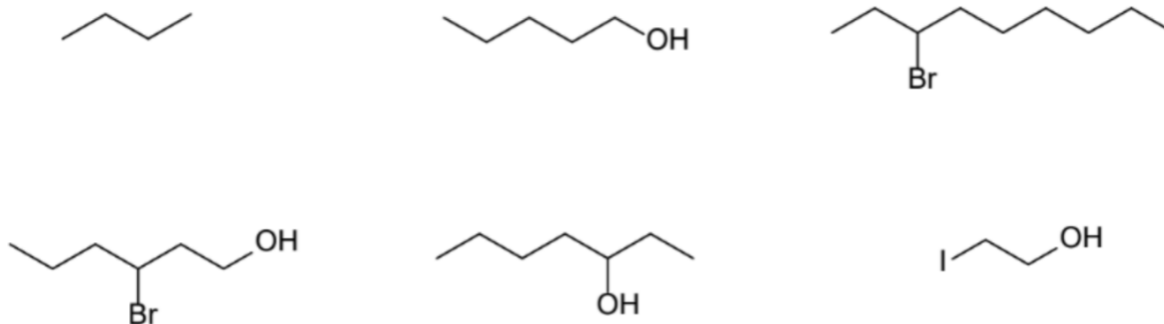
b. Justify the stabilities of the least stable carbocation and most stable carbocation.

c. Identify the compounds above that can undergo a carbocation rearrangement. For each of these, identify which carbocation rearrangement is the most favorable (1,2-hydride shift, 1,2-methyl shift, or 1,2-alkyl shift) and draw the compound obtained after.

5. Name each of the following functional groups.



6. Name each of the following molecules.



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