**Part 1: Match the following.** (\*these terms are very important to know!)

1. \_\_\_\_\_\_\_Molecules with the same formula, same bonding, but with a different spatial arrangement of atoms- not superimposable
2. \_\_\_\_\_\_\_A molecule with at least one chiral carbon
3. \_\_\_\_\_\_\_Molecules with the same formula but different bonding (atom attachment)
4. \_\_\_\_\_\_\_A carbon with 4 different groups attached to it
5. \_\_\_\_\_\_\_A carbon with 2 or more identical groups attached, or having only 2 or three bonds.
6. Chiral carbon b. structural isomers c. stereoisomers d. chiral molecule e. achiral carbon
7. Which of the following contains a chiral carbon?
	1. 4-ethyloctane
	2. 2,2-dimethylpropane
	3. 3-methyl-3-hexene
8. Stereoisomers **are / are not** superimposable upon each other.

**Part 3: Carbohydrates**

1. For the following two carbohydrates, identify *A)* how many chiral carbons there are, *B)* what the overall chirality is and *C)* the generic name
	1. b.

 

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What is the C formula for carbohydrates? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Which is more predominate in nature, D or L, and is thus sometimes omitted from the name? \_\_\_\_\_\_\_

**REVIEW**

**I. Aldehyde/Ketone + alcohol 🡪 hemiacetal**

1. 3-methylheptanal + 1-ethanol🡪
2. 3-hexanone + 1-ethanol 🡪

**II. Hemiacetal + alcohol 🡪 acetal**

1. Product from 1 + 1-ethanol 🡪
2. Product from 2 + 1-ethanol🡪

**III. Put the following into a ring.**

1. 5-hydroxyhexanal 6. 

**IV. Oxidize the following alcohols.**

1. 3-methyl-1-heptanol 8. 3-hexanol

**V. Reduce the following aldehydes or ketones.**

 9. Pentanal 9. 3-pentanone