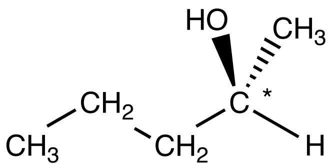
Name ____________________________ Test 3 (11/21)

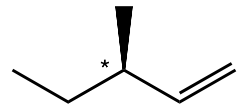
CHEM 0201 (Organic) Fall 2012

1. (8 pts. ea.) Determine the configuration of the chiral centers that are marked with a star.

a.



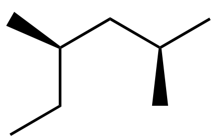
b.



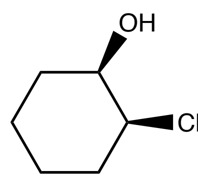
2. a. (8 pts.) Place a star next to the chiral centers on the following molecules.

b. (8 pts.) Determine whether the following molecules are chiral.

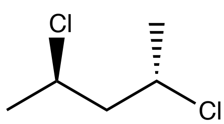
i.



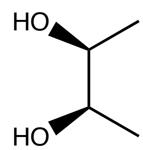
ii.



iii.

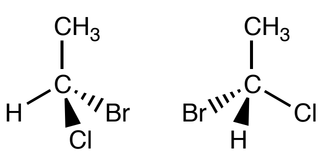


iv.

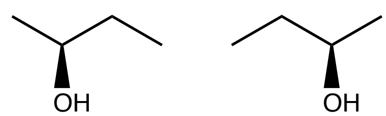


3. (12 pts.) For each of the following pairs of molecules, determine whether the molecules are enantiomers, diastereomers, or different views of the same molecule.

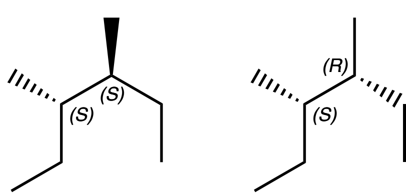
a.



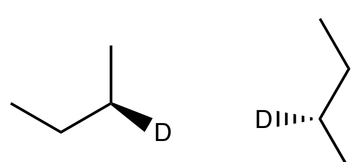
b.



c.



d.



1. ________

2. ________

3. ________

4. ________

5. ________

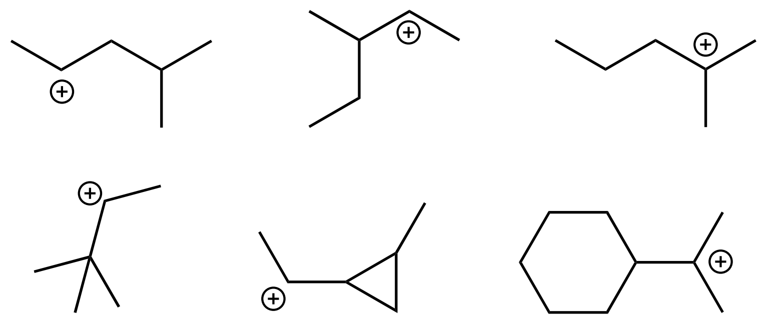
6. ________

7. ________

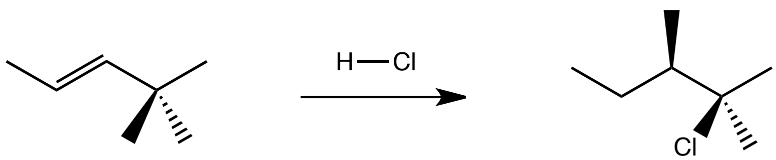
8. ________

9. ________

4. (12 pts.) Circle the carbocation(s) that would be likely to rearrange if formed as an intermediate during an electrophilic addition.

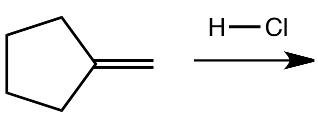


5. (10 pts.) Draw a mechanism that accounts for the formation of the product in the following reaction.

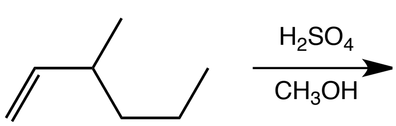


6. (6 pts. ea.) Predict the organic product(s) for the following reactions.

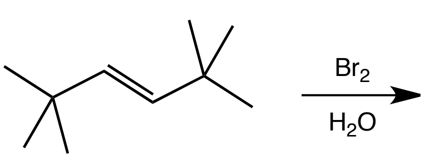
a.



b.



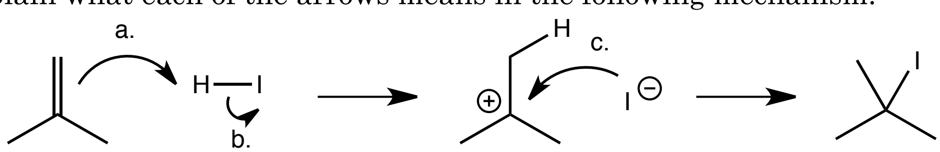
c.



7. (10 pts.) Explain why 3° carbocations are more stable than 2° carbocations.

8. (10 pts.) Explain why reactions that use Hg^{2+} as an electrophile are not prone to carbocation rearrangements.

9. (12 pts.) Explain what each of the arrows means in the following mechanism.



a.

b.

c.