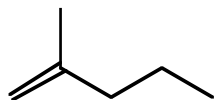
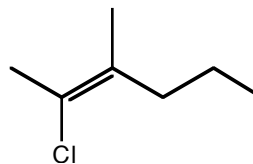


1. (12 pts.) Provide the names for the following molecules. Use the *Z* and *E* nomenclature where appropriate.

a.



b.

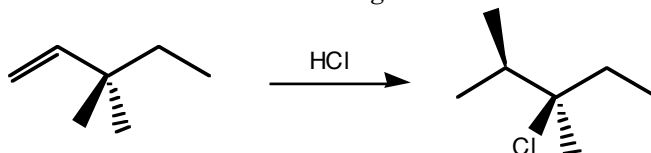


1. _____

2. _____

3. _____

2. (12 pts.) Draw the mechanism for the following reaction.



4. _____

5. _____

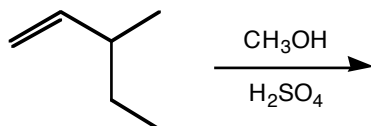
6. _____

7. _____

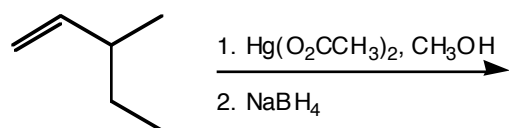
8. _____

3. a. (12 pts.) Predict the products for the following two reactions.

9. _____

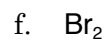
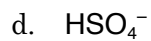
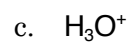
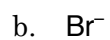
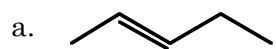


10. _____

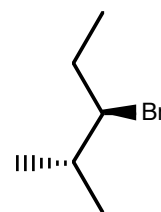
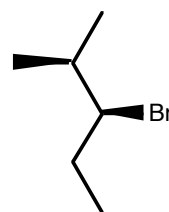
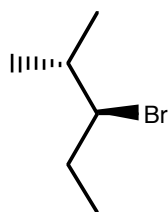
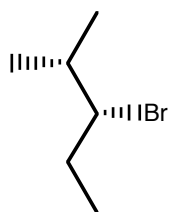
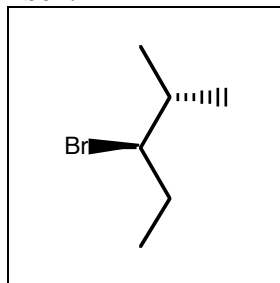


b. (8 pts.) Explain why the reactions make different products.

4. (2 pts. each) Which of the following molecules, atoms, or ions is nucleophilic.



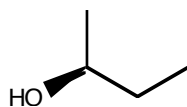
5. (2 pts. each) Compare the molecules on the right to the molecule in the box. Identify whether each of the molecules is an enantiomer, diastereomer, or a different view of the molecule in the box.



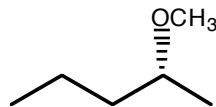
6. (8 pts.) Draw *R*-3-bromo-3-methylhexane.

7. (6 pts. each) Determine the configuration of the chiral centers on the following molecules.

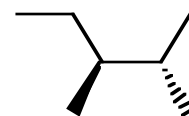
a.



b.



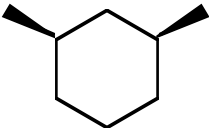

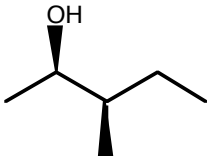
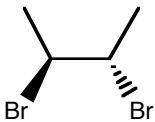
c.



8. a. (2 pts. each) Identify any chiral centers on the following molecules.

b. (2 pts. each) Identify the chiral molecules.

c. (1 pt. each) If a molecule is a meso structure, label it as such.

i. 	ii. 
iii. 	iv. 

9. (10 pts.) Which is more stable, a 2° carbocation or a 3° carbocation? Explain.

Take home question to be answered **on your own** with the help of your textbook if you wish. Please write your answer as a brief essay.

10. (10 pts.) The fluorine-substituted carbocation on the left is less stable than the analogous compound pictured on the right. Explain.

