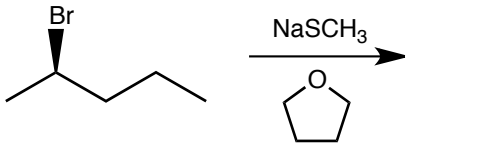
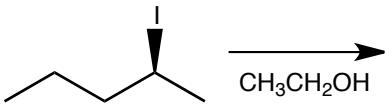
Name _____ Test 3 (4/28)
CHEM 0203 (Organic II) Spring 2014

1. (12 pts.) Under the following conditions, would the substitution reactions proceed predominantly through an S_N1 or S_N2 mechanism.

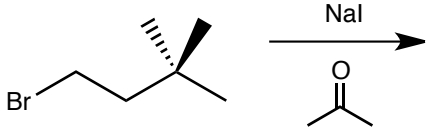
a.



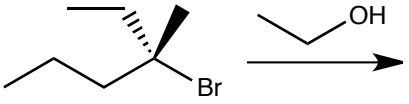
b.



c.



d.

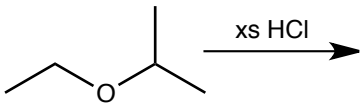


1. _____
2. _____
3. _____
4. _____
5. _____

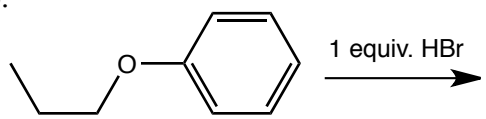
2. (12 pts.) Predict the outcome of the substitution reactions that occur with the following ethers. Ignore stereochemistry.

6. _____
7. _____

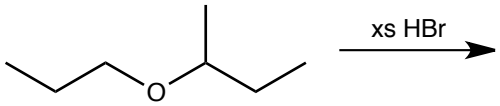
a.



b.

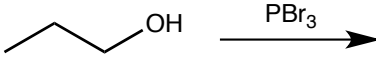


c.

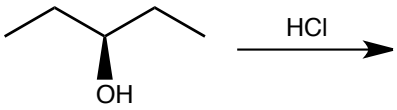


3. (12 pts.) Predict the outcome of the following substitution reactions with the following alcohols. Ignore stereochemistry.

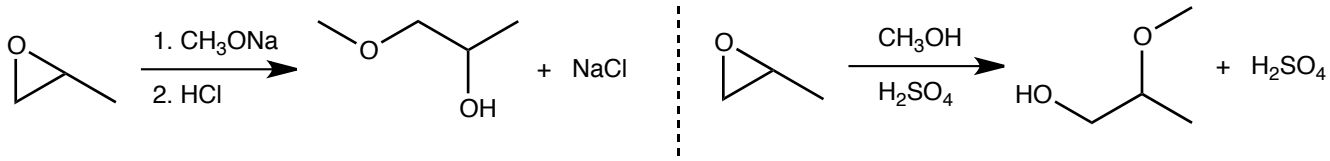
a.



b.

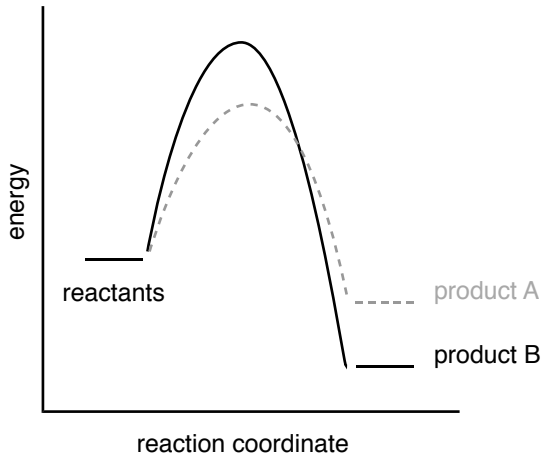


4. (10 pts.) Explain the outcome of the following reactions; that is, explain why the nucleophilic oxygen is added to different positions on 1,2-epoxypropane (the epoxide).



5. (12 pts.) The following questions refer to the reaction coordinate diagram drawn to the right.

a. Which of the products, product A or B, would be produced more quickly? Explain.



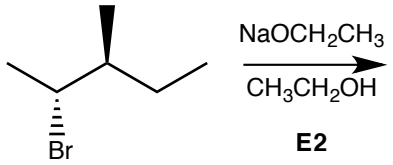
b. Which product is lower in energy?

c. If the reaction was under kinetic control, which would be the major product? Explain.

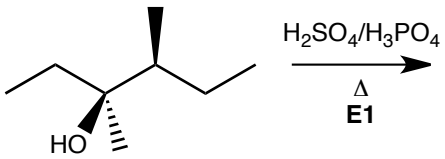
d. If the reaction was under thermodynamic control, which would be the major product? Explain.

6. (12. pts) Predict the products for the following elimination reactions. In these reactions, remember to indicate the stereochemical outcome of the reactions.

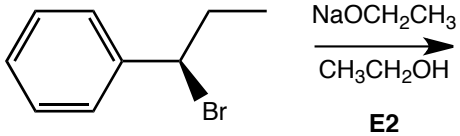
a.



b.

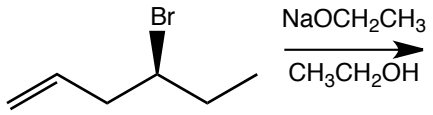


c.



7. (12 pts.) Predict the major products in the following elimination reactions, ignore stereochemistry.

a.



b.