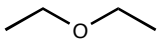
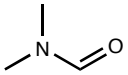
Name _____ Test 2 (3/15)
CHEM 0203 (Organic II) Spring 2008

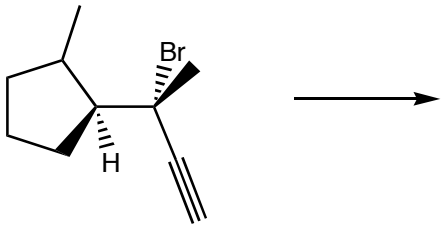
Common solvents used in organic chemistry.

THF =  Et_2O =  DMSO =  DMF =  acetone = 

Stereochemistry of E1 and E2 reactions

1. a. (6 pts.) In the E2 reaction shown in part b., are both the *E* and *Z* alkenes produced? Explain your response.

b. (6 pts.) Draw only the *E* and/or *Z* isomer(s) that is(are) produced during the reaction



c. (6 pts.) If the reaction proceeded by an E1 mechanism, could both the *E* and *Z* isomers be produced? Explain your response.

Nucleophilicity of Grignard and alkyl lithium reagents

2. (10 pts.) Explain why C atoms that are directly bonded to alkali and alkaline earth metals are nucleophilic.

substitution and elimination reactions of alcohols

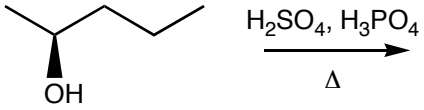
stereochemical outcome of substitution and elimination reactions

competition between substitution and elimination

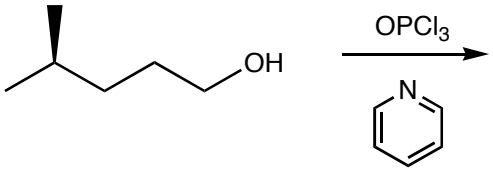
3. a. (2 pts. each) Identify the type of mechanism that you expect the following reactions to follow (E1, E2, S_N1, or S_N2, if you think the reactions proceed by a combination of mechanisms write both mechanisms), and

b. (6 pts. each) predict the organic product(s) of the reaction (remember to indicate the stereochemistry of the products where appropriate. If more than one product forms, indicate which is the major product.)

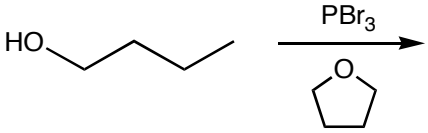
i.



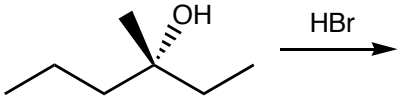
ii.



iii.



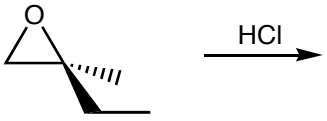
iv.



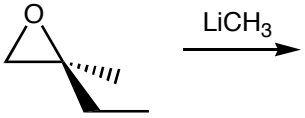
regioselectivity of epoxides reactions

4. (6 pts. each) Predict the products of the following reactions (ignore stereochemistry).

a.



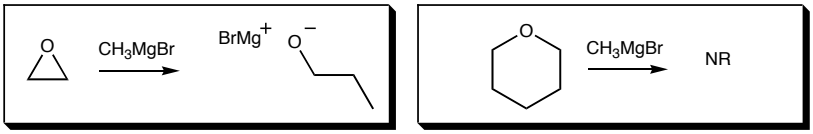
b.



special reactivity of epoxides

reactivity of ethers

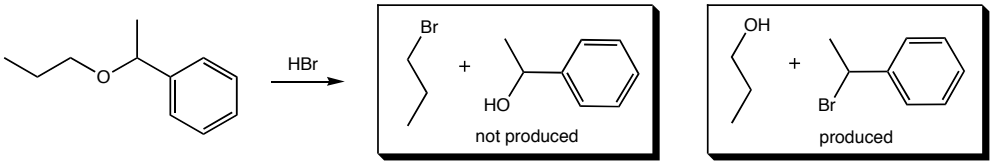
5. (10 pts.) Explain why the reaction on the left produces the indicated product, whereas no reaction occurs when the reagents on the right are combined.



reactivity of ethers

S_N1 vs S_N2

6. a. (6 pts.) Draw a mechanism the shows how the products of this reaction are formed.



b. (6 pts.) Explain, why you chose the mechanism (S_N1 vs S_N2) that you drew above.

quality of a leaving group

sulfonate esters

resonance and e^- withdrawing as stabilizers of negative charge

7. (10 pts) Why is triflate such a good leaving group?