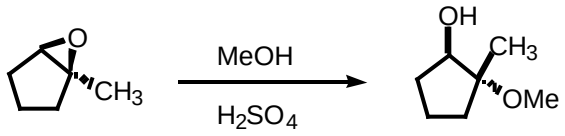
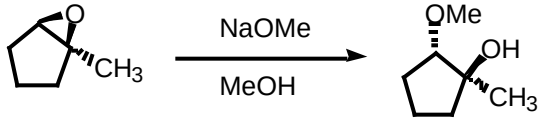
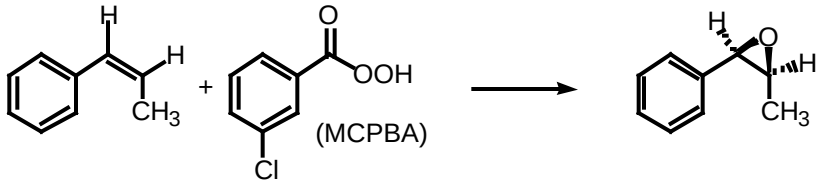
**CHE 173**
**Winter, 2005**
**Quiz 9 Answer Key**

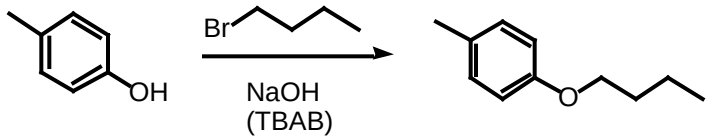
**Name**_____
**Section: 201 202 203 204 205 206**
M T W Th F Th nt.
*(circle one)*

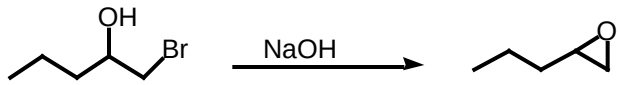
1. Predict the principal organic product of each of the following reactions. Specify stereochemistry where appropriate. (10 pts)

(a) 


(b) 


(c) 

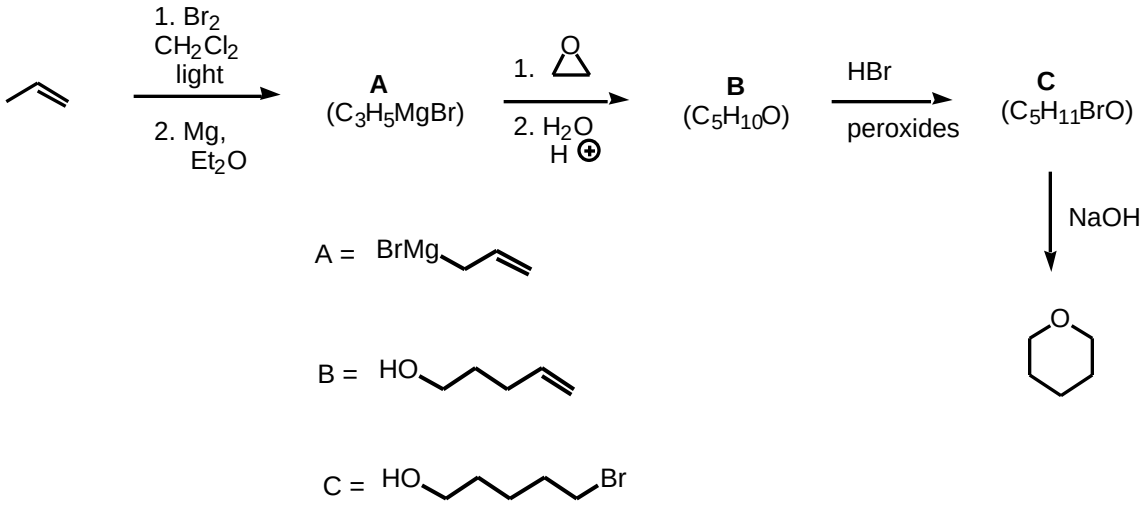

(d) 


(e) 

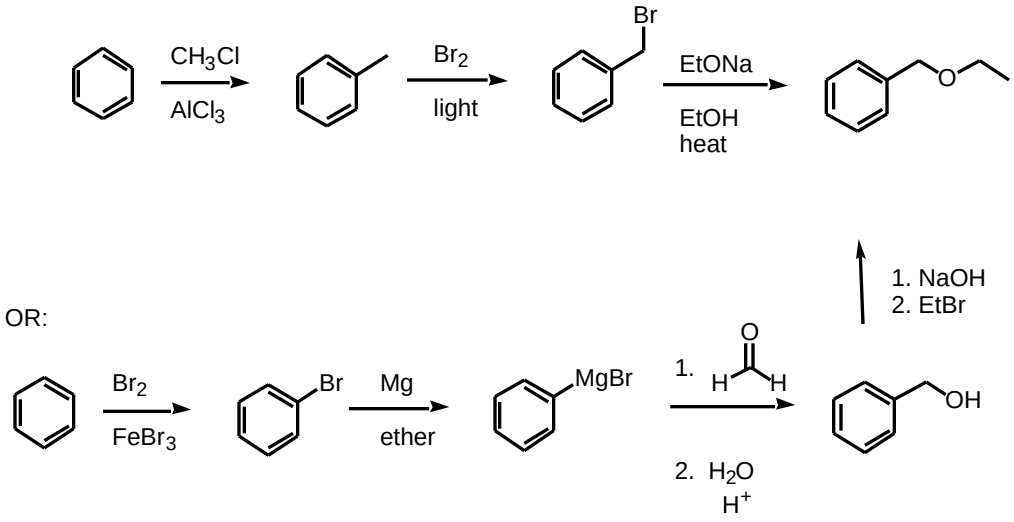

2. Show a detailed mechanism for any one of the reactions from question 1 above. (5 pts)
   - *(a) is an SN1-like reaction that proceeds through a carbocation-like intermediate, leading to addition to the more substituted epoxy carbon.*
   - *(b) Is an SN2-like reaction with backside attack at the less sub'd epoxy carbon.*
   - *(c) Epoxidation*
   - *(d) Williamson ether synthesis*

*(e) Epoxidation via base-catalyzed intramolecular Williamson reaction of a bromohydrin.*

3. Treatment of propene with bromine in methylene chloride and exposed to light, results in allylic bromination. The product is treated with magnesium metal in diethyl ether to give compound **A**. Treatment of **A** with oxirane followed by an aqueous, acidic work up affords compound **B**. Treatment of **B** with HBr in the presence of peroxides gives **C**, which undergoes an intramolecular Williamson ether synthesis when treated with NaOH to give the final product (tetrhydropyran). Deduce the identities of compounds **A**, **B** and **C**. (15 pts)




4. Show a synthesis for the compound shown below starting from benzene and any necessary organic or inorganic reagents. (10 pts)



5. The compound shown below undergoes an intramolecular Williamson reaction on treatment with base to give a bicyclic ether. Demonstrate your understanding of the terminology used in the preceding sentence by writing the structure of the organic product ($C_{11}H_{2o}O$). (10 pts)