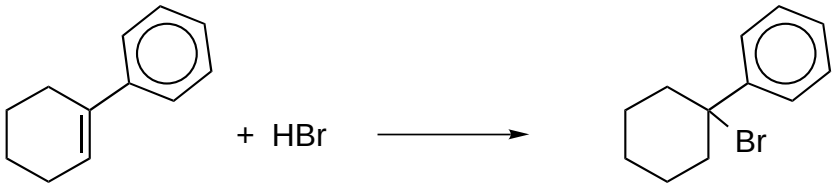
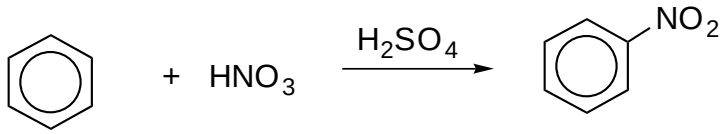
CH1020 Exam 1 Name_____ Key_____

February 14, 2001 SSN_____ Seat No_____

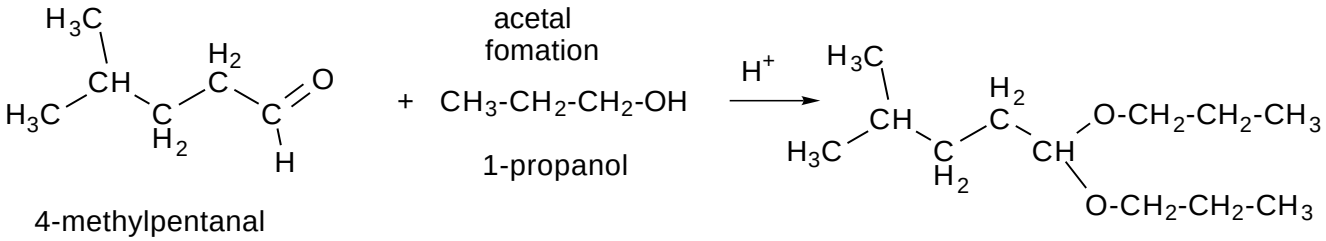
1. Complete the following equations. **Name all organic reactants and products.** (35%)

a. 

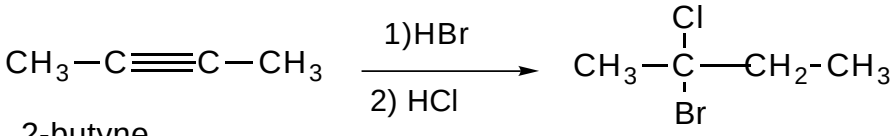
1-phenylcyclohexene 1-bromo-1-phenylcyclohexane

b. 

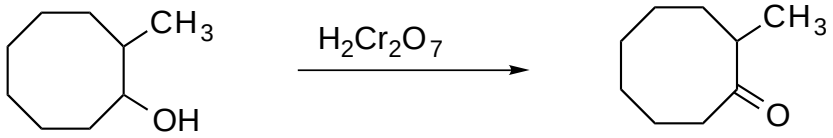
Benzene Nitrobenzene

c. 

4-methylpentanal 1,1-diporpoxy-4-methylpentane

d. 

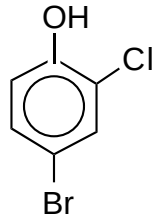
2-butyne 2-bromo-2-chlorobutane

e. 

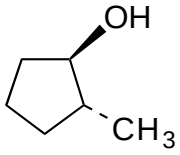
2-methylcyclooctanol 2-methylcyclooctanone

2. Draw the structures of the compounds whose names are given below. (20%)

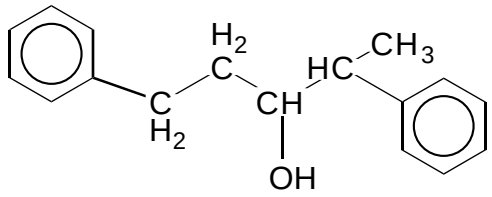
a. 2-Chloro-4-bromophenol



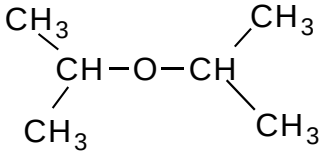
b. *Trans*-2-methylcyclopentanol



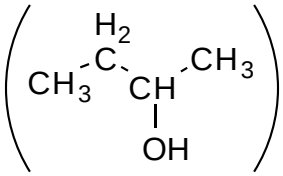
c. 1,4-diphenyl-3-pentanol



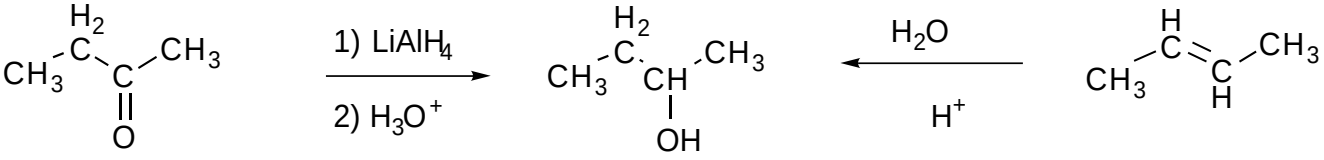
d. Diisopropyl ether



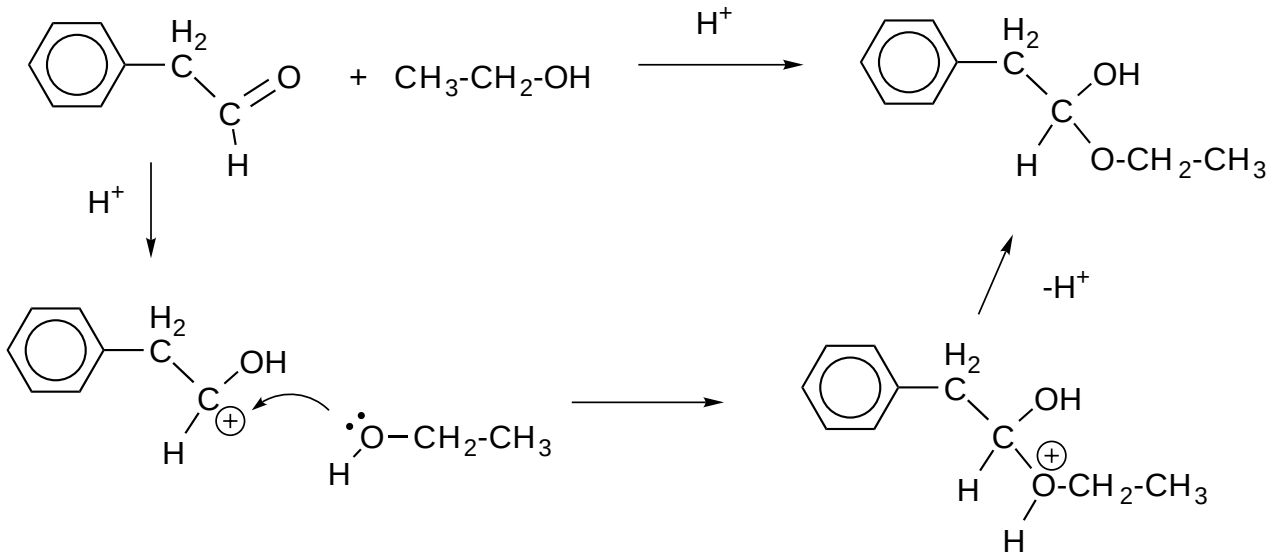
3. Write two equations which would allow the preparation of 2-butanol



in one step. (20%)



4. Write the mechanism for the reaction shown below. (15%)



5. The ir spectrum of an unknown compound shows it to be an alcohol, the mass spectrum gives a molecular weight of 60 and the carbon NMR shows two different kinds of carbons. Propose a reasonable structure for the unknown. (10%)