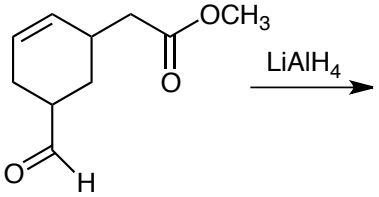
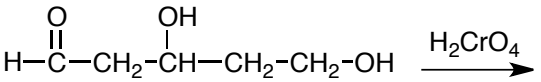
Long Island University, Department of Chemistry

Chem. 122, Sect 007, Exam 1, 100 pts, Spring, 2012

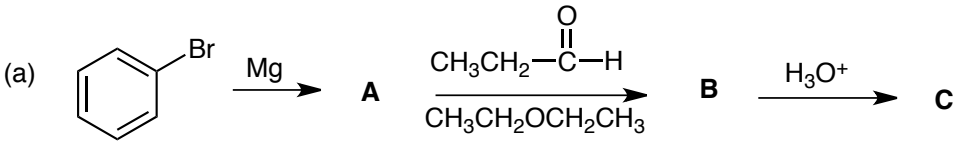
1. Identify the following molecules: (a) formula (C_3H_7Br); ^{1}H NMR: δ 1.2, doublet, 6H; 1.6, singlet, 1H. (b) formula ($C_{10}H_{10}O$); IR: 1720 cm^{-1}; ^{1}H NMR: δ 1.1, doublet, 3H; 1.3, quartet, 1H; 7.4 broad singlet, 5H; 9.6, triplet, 1H. (20 pts)

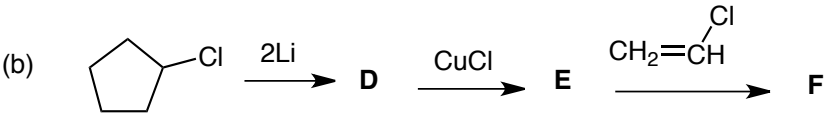
2. Give the product of the following reactions. It is not necessary to show the full mechanism. (10)

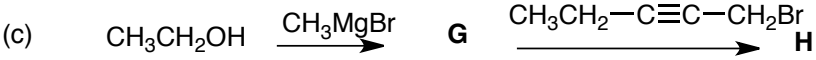
(a) 

(b) 

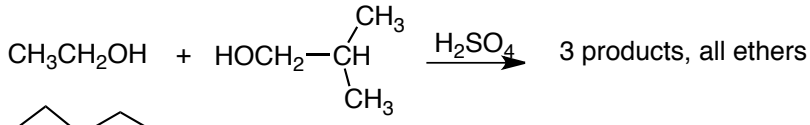
3. For the following reactions, show all of the intermediates, (30 pts)

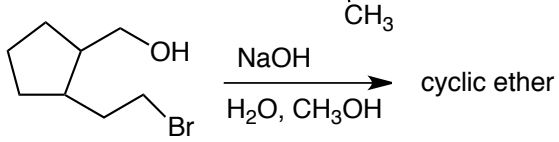
(a) 

(b) 

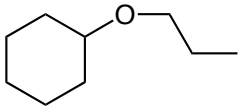
(c) 

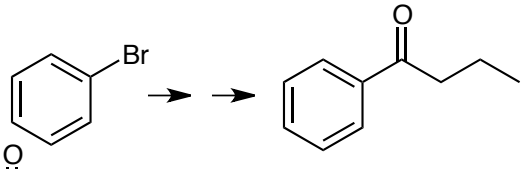
4. Give the product(s) of the following reactions and show the complete reaction mechanism in each case. (20 pts)

(a) 

(b) 

5. Synthesize **two** of the following three molecules as shown. For extra credit do all three. (20 pts)

(a) ROH + R'X → 

(b) 

(c)