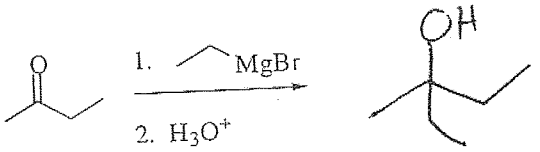
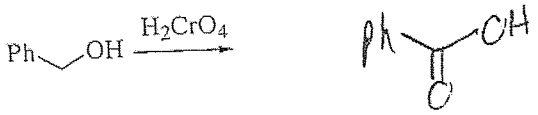
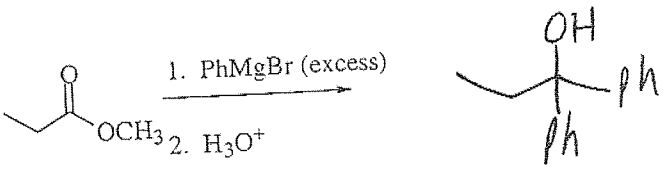
Jasperse Organic Chemistry II Test 1 Version 1

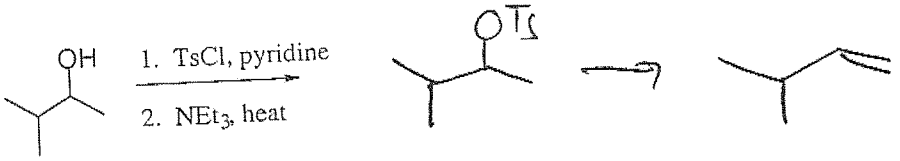
Alcohols

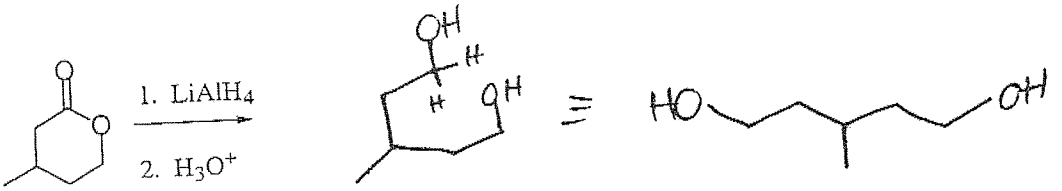
1. Give the major product for the following reactions. (3 points each)

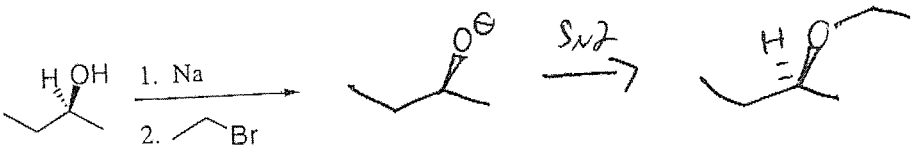


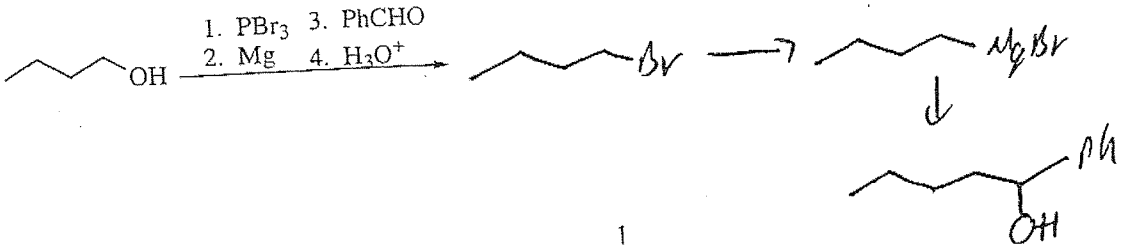




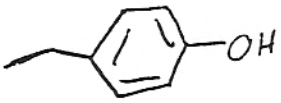


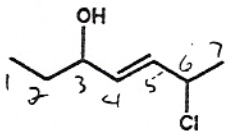




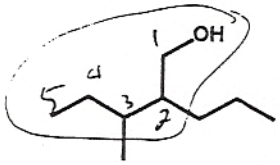


2. Give Names or structures for the following: (9 points)

para-ethylphenol 

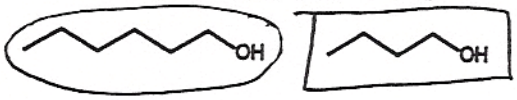


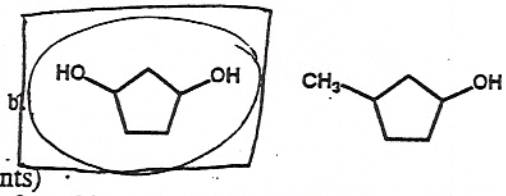
(E)-6-chlorohept-4-en-3-ol



3-methyl-3-propylpentan-1-ol

3. For each of the following pairs, circle the one that is higher boiling and put a square around the one with the higher water solubility. (4 points)

a. 

b 

4. Which of the following statements is true? (4 points)

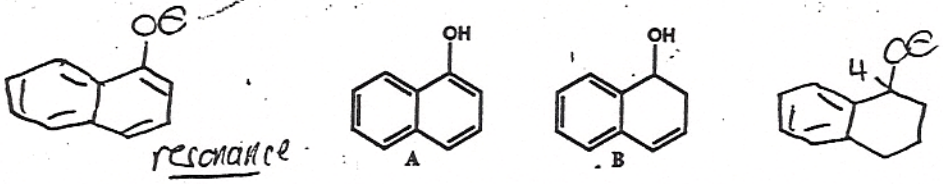
a. When an ether solution of **A** and **B** in a separatory funnel is treated with neutral water, only **B** remains in the ether layer.

b. When an ether solution of **A** and **B** in a separatory funnel is treated with neutral water, neither **A** nor **B** remains in the ether layer.

c. When an ether solution of **A** and **B** in a separatory funnel is treated with basic water ($NaOH/H_2O$), both **A** and **B** remain in the ether layer.

d. When an ether solution of **A** and **B** in a separatory funnel is treated with basic water ($NaOH/H_2O$), only **B** remains in the ether layer.

taken directly from book problem



resonance

A

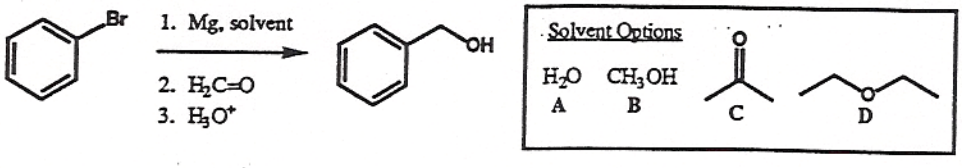
B

no resonance

5. For the following transformation, which of the following statements is true? (4 points)

a. **D** is the only acceptable solvent
b. **C** is the only acceptable solvent
c. **C** and **D** are both acceptable solvents
d. **B**, **C**, and **D** are all acceptable solvents
e. **A** and **B** are the only acceptable solvents

A+B would protonate RM
C would react as well



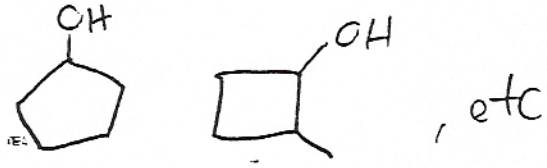
6. Suggest a possible structure for an unknown A whose formula is $C_5H_{10}O$ and gives the following chemical test results. (5 points)

EU=1

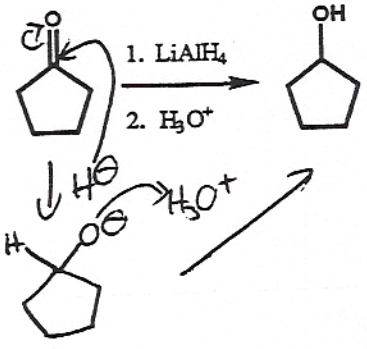
EU=1 ring or DB

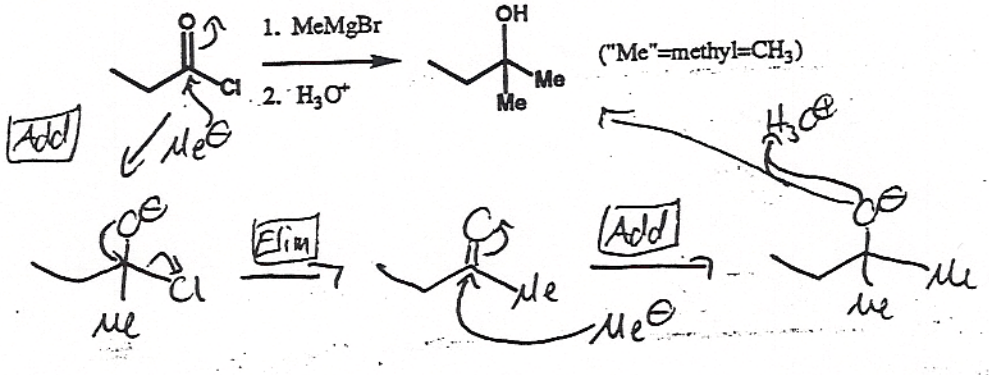
Formula	$C_5H_{10}O$		
Hydrogenation Test	H_2/Pt	No reaction	no DB ⇒ cyclic
Chromic Acid Test	H_2CrO_4	Turns Green	1° or 2° alcohol
Lucas Test	$HCl/ZnCl_2$	Reacts within 5 minutes	not 1°, 2°

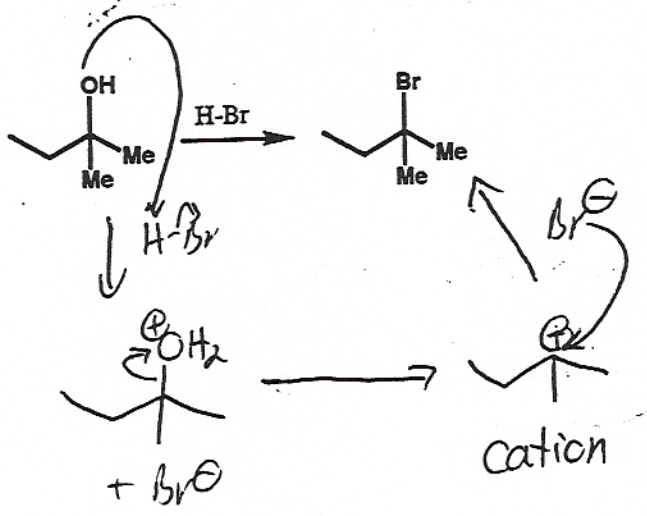
Summary: 2° alcohol, cyclic



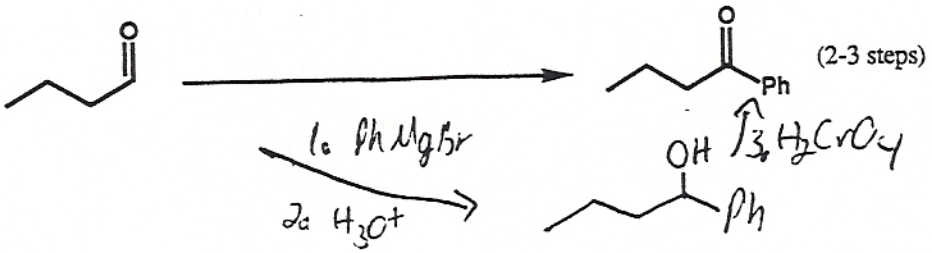
7. Provide the mechanisms for the following reactons (3, 5, and 5 points)

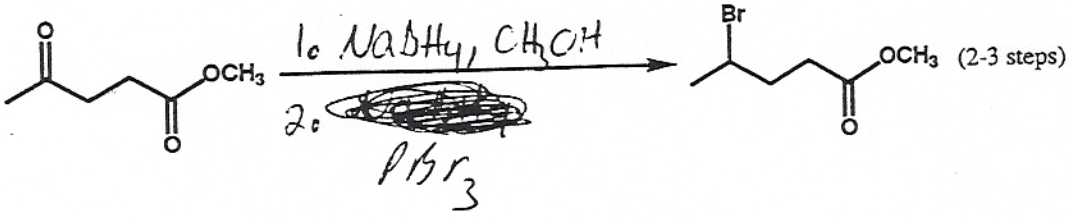




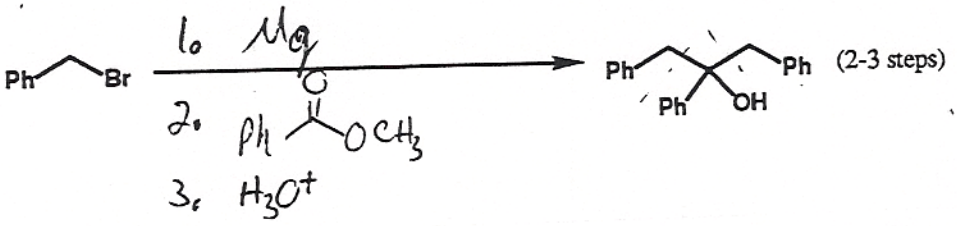


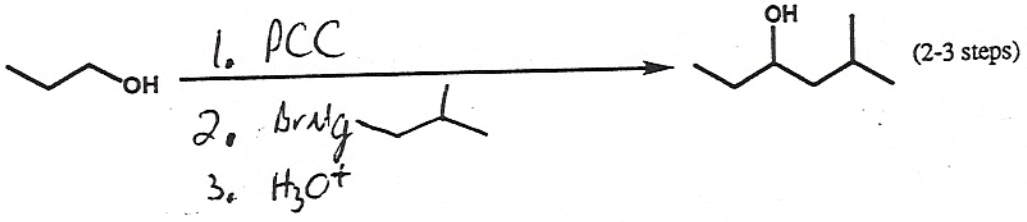
8. Provide the reagents necessary to accomplish the following transformations (4 points each)

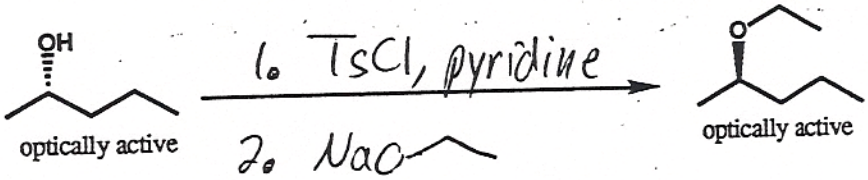




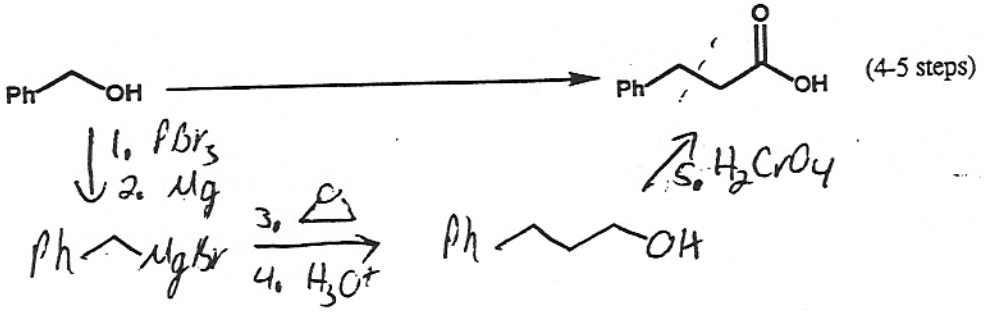
LiAlH4 not ideal, would also react with ester



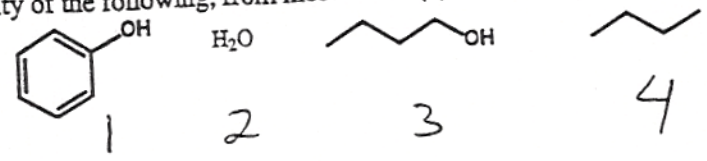




inversion ⇒ SN2



9. Rank the acidity of the following, from most acidic (1) to least acidic (4). (4 points)



10. Design syntheses of the following. (6 points each). Allowed starting materials (same as practice) include:
cyclopentanol any esters ethylene oxide formaldehyde iodomethane
any acyclic alcohol or alkene wth ≤4 carbons
any "inorganic" agents (things that won't contribute carbons to your skeleton)