

PLEASE STAPLE! IF you work with a group of students submit ONE Worksheet with all names for a group grade (print):

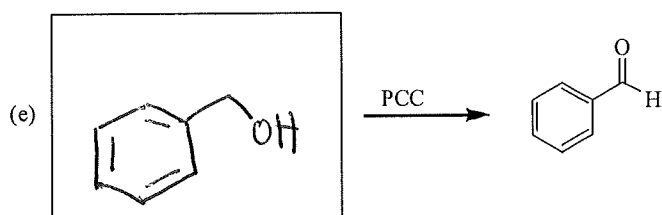
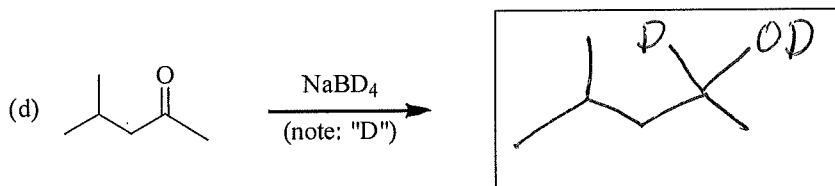
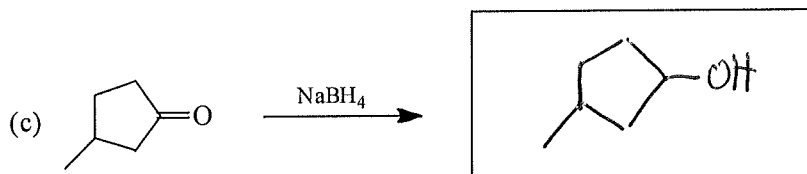
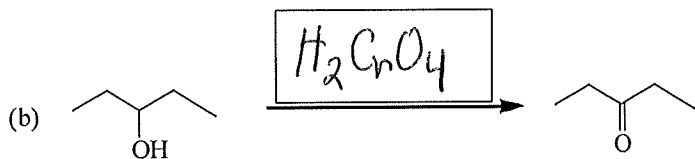
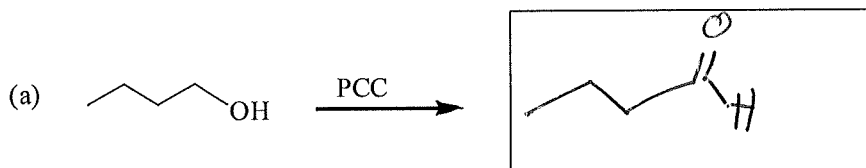
Key

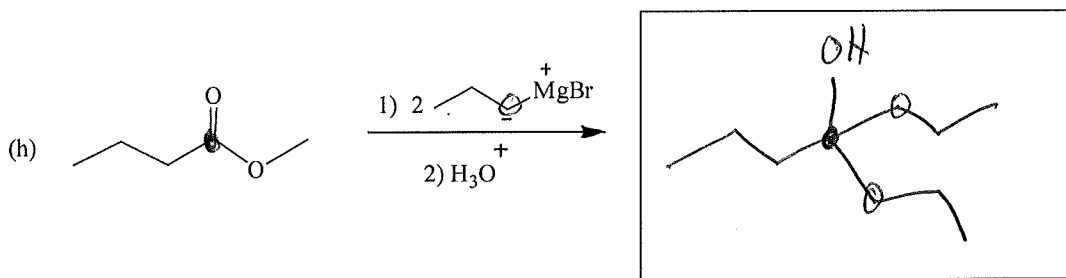
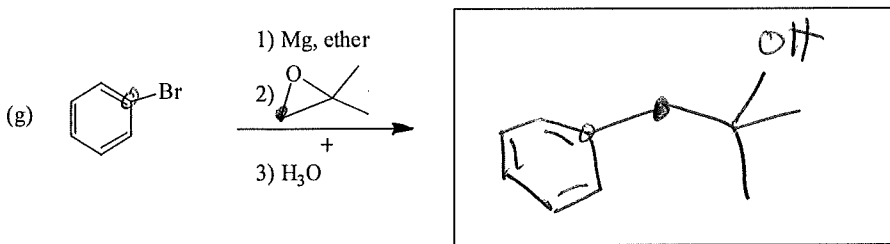
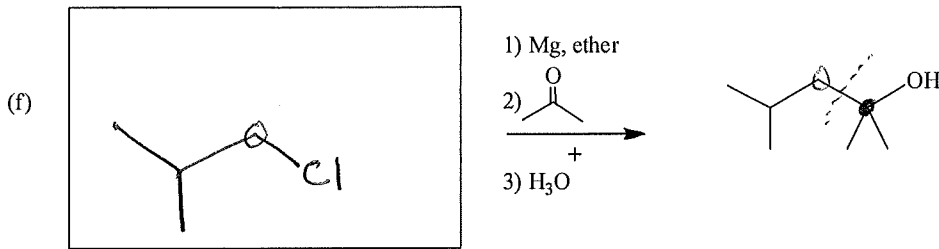
CHEM 344 Organic Chemistry II – Spring 2012

Booster Points \_\_\_\_\_ (10 max)

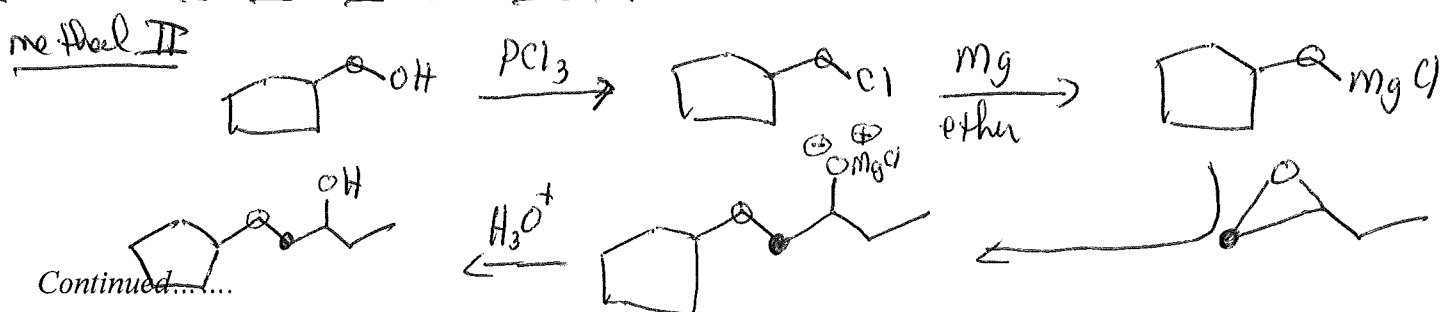
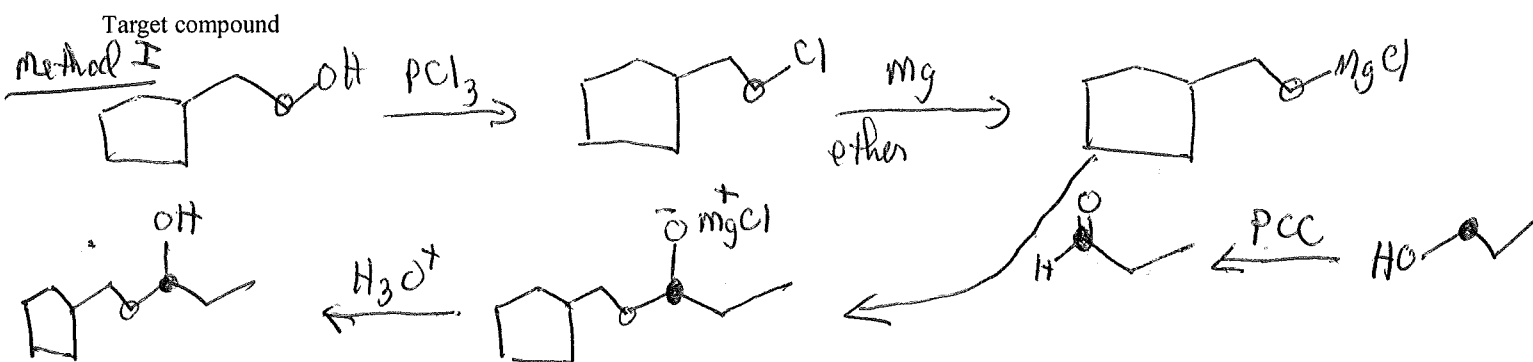
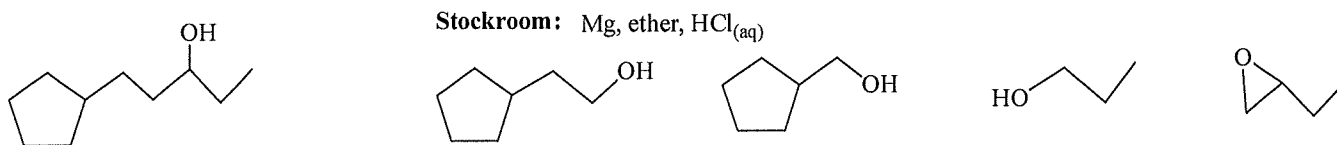
**Booster #3: Due Friday, February 10 at 8:00 AM (I will not accept late worksheets).** Complete the following worksheet using the course text or any other resources available to you. You may work together, with the names of all students included on **ONE** sheet and turned in for a group grade.

**1. Reactions.** Complete the reactions shown below by drawing the structure of either: **the major, neutral organic products; or the Reagent; or the Reactant** in each box. **You do NOT need to balance these reactions.**

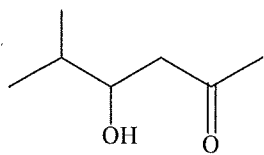




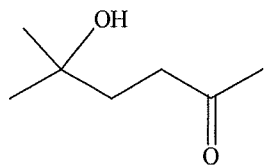
**2. Multi-step Synthesis.** Propose a multi-step synthesis for the target compound shown below using the organic compounds given, and any other necessary reagents.



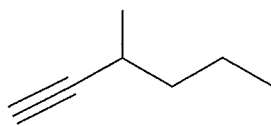
3. Identification of an Unknown Organic Compound. An unknown organic compound is one of the four molecules shown below: A, B, C, or D. The unknown was analyzed by IR and GC/MS.



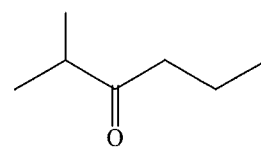
A



B

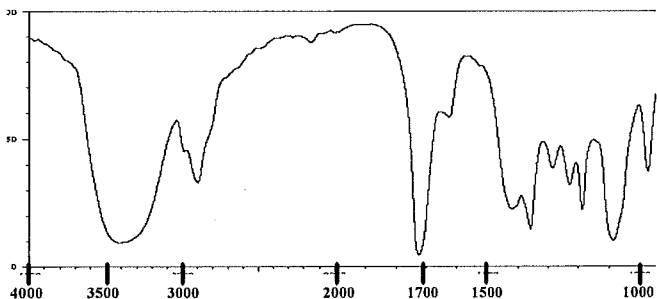


C



D

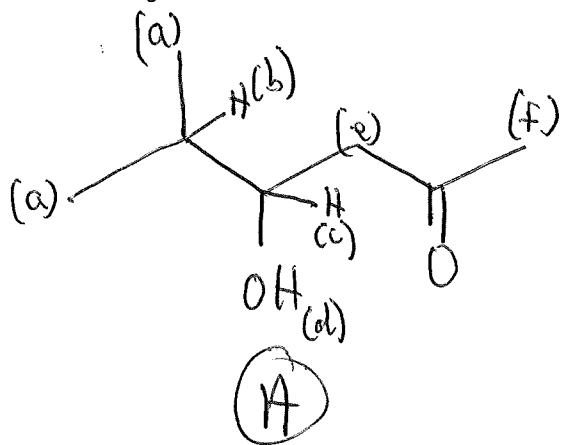
(a) Does the IR spectrum shown below help you to narrow your choice(s)? Explain.



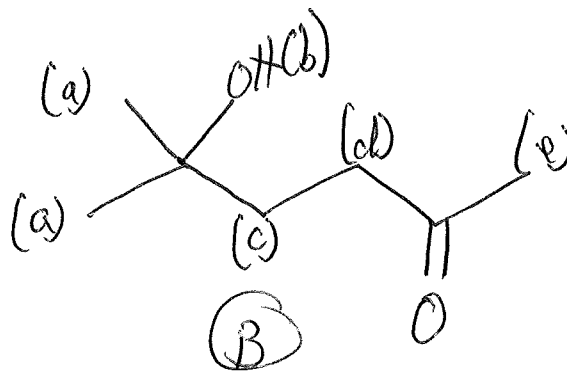
The IR suggests an  $-OH$  (3250-3600) and a carbonyl ( $C=O$ ) at 1700. This is consistent with A+B, but Not C or D.

(b) The NMR spectrum for the unknown has 5 sets of signals. Can you identify the unknown? If yes, label each set of unique protons as (a), (b), etc.

5 sets of NMR signals means 5 sets of unique protons. If we look at A + B =



6 signals



5 signals, the

unknown is (B)