

NAME _____

Organic Chemistry II, CHEM 332

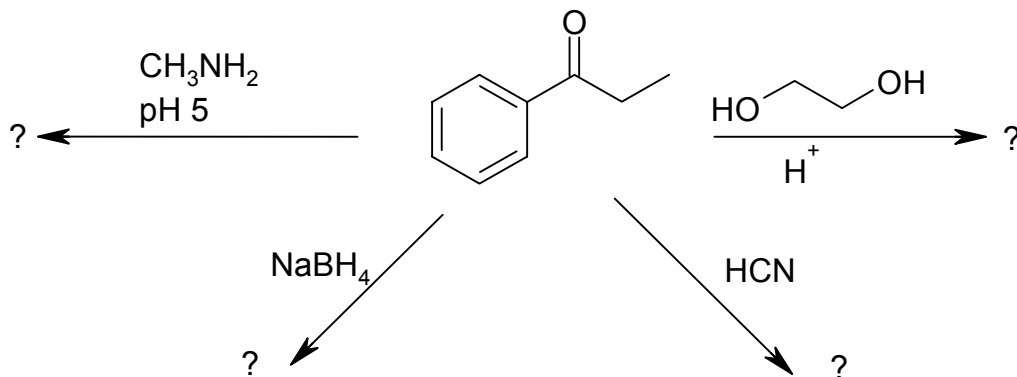
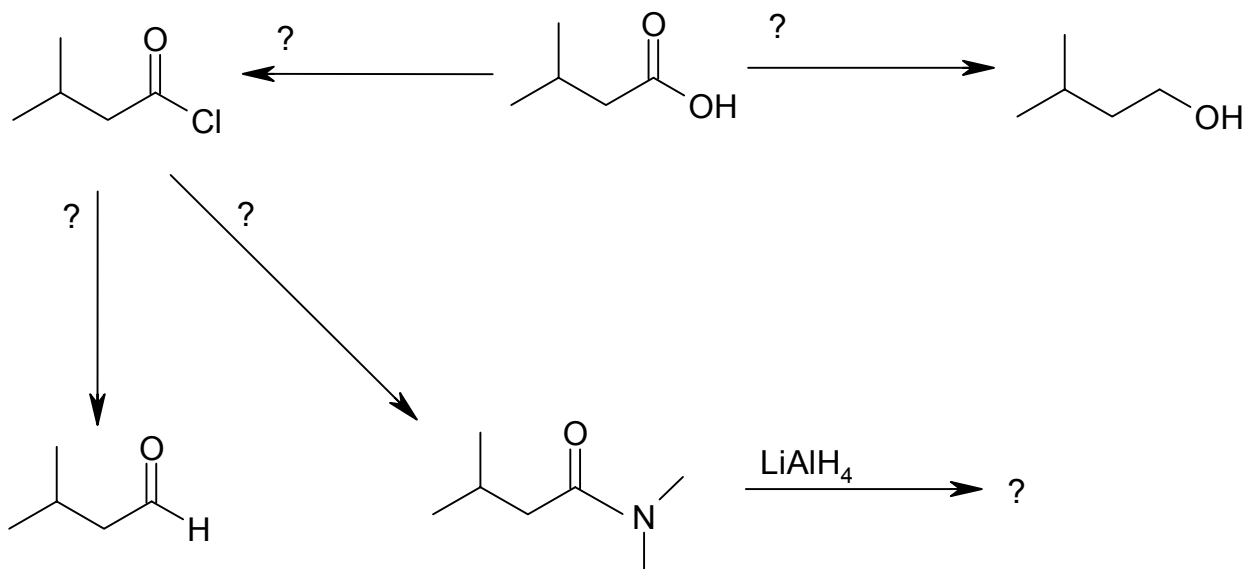
Sections 003, Dr. Sweeting

Exam 2, April 5, 2002

Full credit: 100 points, maximum with bonuses 116.

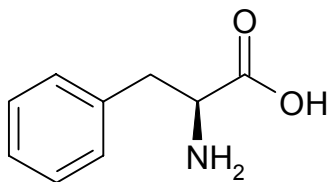
If you don't have enough room to complete your answer, use the back of the page and tell the grader where it is.

1. Please complete the following reactions by inserting a sketch of the missing reactant or product as indicated by the question mark. (4 points each, 36 total)

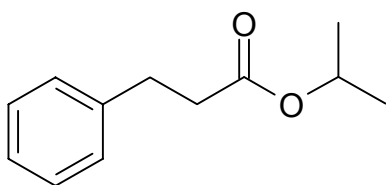


2. Give IUPAC names for each of the following compounds. Be sure to include stereochemistry where appropriate. (16 points)

a)



b)



3. Give an example of TWO of the following, You may make a sketch or give a name to illustrate. You will get 3 points for anything that meets the criterion, and a 4 points if you have both name and structure for a compound that is known to exist naturally or to be useful commercially. You will get credit for additional correct answers. (8 points + 8 points)

an aldopentose

a polyester

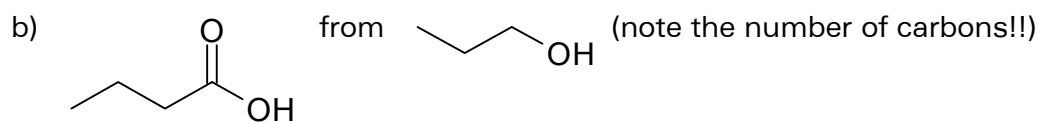
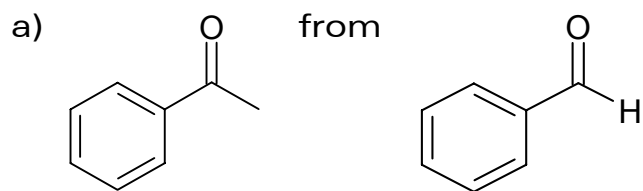
a lactone

an NSAID

4. a) Please write the currently accepted mechanism for the hydrolysis of methyl benzoate in aqueous acid. Show all intermediates for which there is reasonable evidence, including all proton transfers. You may show arrows to indicate how the electrons participate in the reaction, but they are not necessary for full credit. (16 points)

b) Explain how one piece of experimental evidence (your choice) supports the theory that this mechanism is correct, i.e., describe the evidence and draw appropriate conclusions from it. (8 points)

5. Outline a practical laboratory synthesis of TWO of the following from the reagent indicated. Extra credit for an additional correct synthesis proposed. (8 points each, total 16 points plus 8)



c) 1-bromobutane from butanoic acid