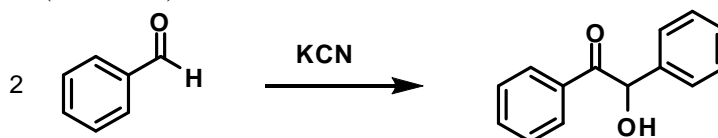


University of Windsor  
Department of Chemistry and Biochemistry  
59-531 Midterm

Time 60 min

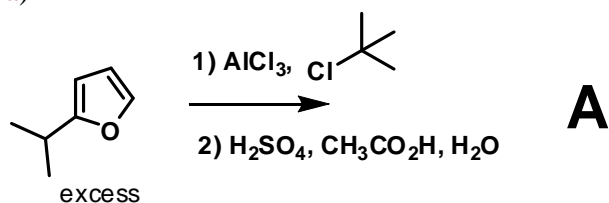
Oct. 24, 2012

1. Give the complete mechanism of the cyanide ion induced benzoin condensation between two molecules of benzaldehyde (10 marks)

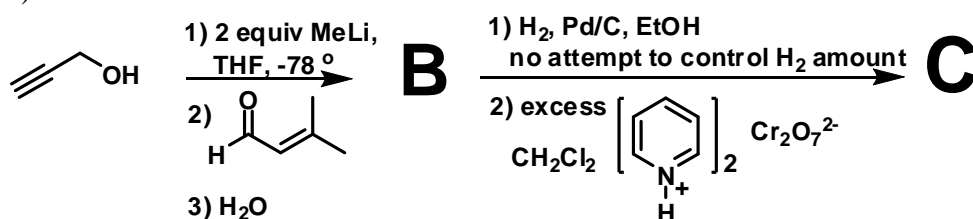


2. Indicate the structure of the major expected product of each of the following transformations. Include the product stereochemistry where it applies. Give the reasoning behind your answer (i.e., show your work) to the degree possible in a 60 min exam. *I also expect to see any intermediates that could be isolated along the way* (40 marks).

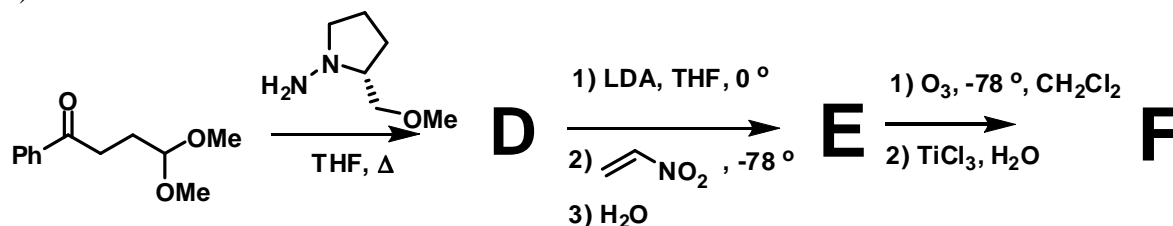
a)



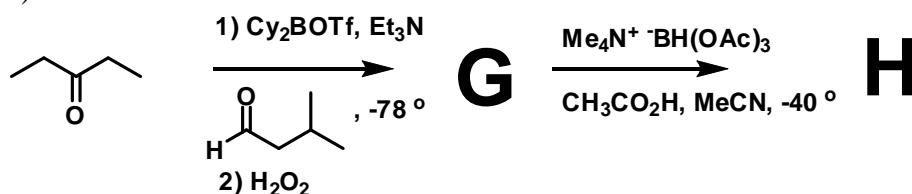
b)



c)



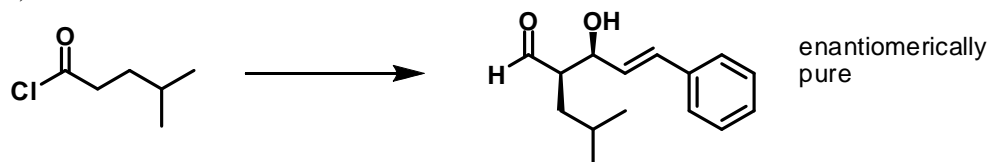
d)



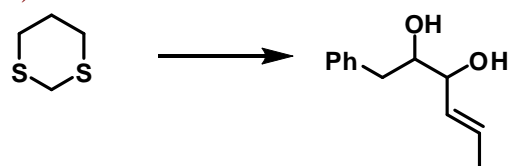
3. Show by equation how you would prepare the products illustrated from the given starting material. All will require >1 step. You may use *any* other reagent you deem fit as long as it makes chemical sense

and is stable. Show all reagents, conditions, and intermediates that could be isolated. Mechanisms are not necessary, but showing your work may be a help. (30 marks)

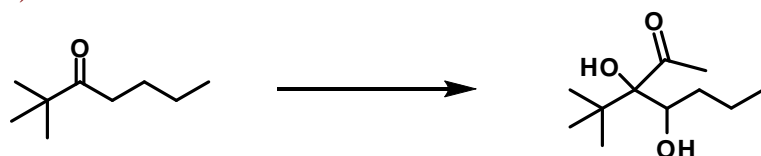
a)



b)



c)



**Bonus:**

Prof. Orellana at York has been able to accomplish some chemistry related to the homoenolate chemistry discussed in this course under these surprisingly mild conditions. Can you give the product and show how the reagents get there?

