

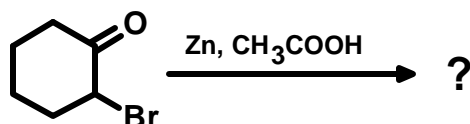
University of Windsor  
Chemistry and Biochemistry

Chemistry 59-331/333  
Test #3

Mar. 29, 2000  
50 minutes

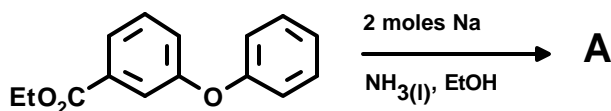
Answer all questions in the exam booklet

1. Show the complete mechanism for the metal-acid reduction of 2-bromocyclohexanone. (10 marks)

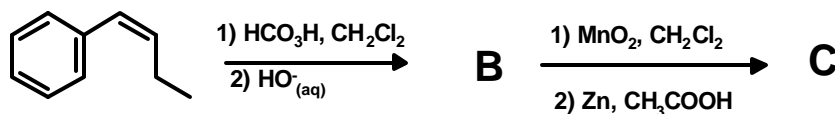


2. indicate the structure of the major product from each of the following reactions. Include stereochemistry where relevant. Mechanisms are not necessary, but showing you work may be a help.

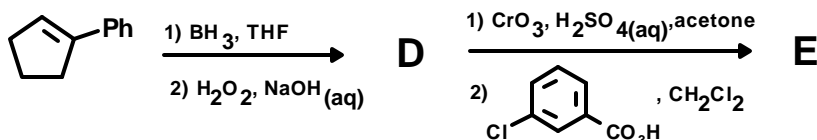
a.



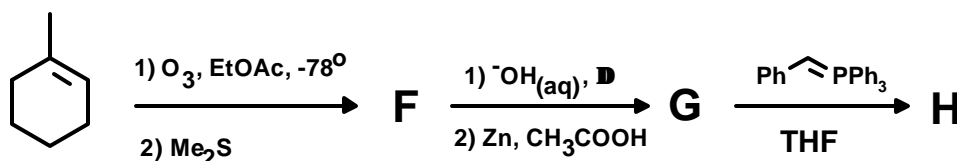
b.



c.

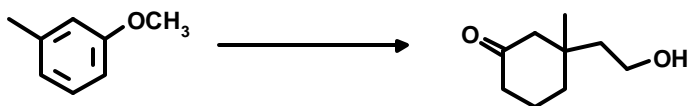


d.

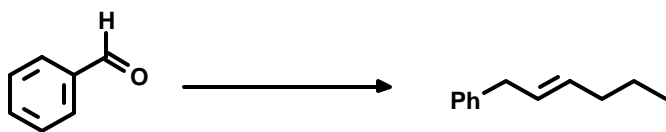


2. Show by equation how you could prepare the products illustrated below from the given starting materials. You may use any other reagents that you deem fit. Show all reagents, conditions, and intermediates that could be isolated. Mechanisms are not necessary, but showing you work may be a help. **Do any three (10 marks each, 30 marks total).**

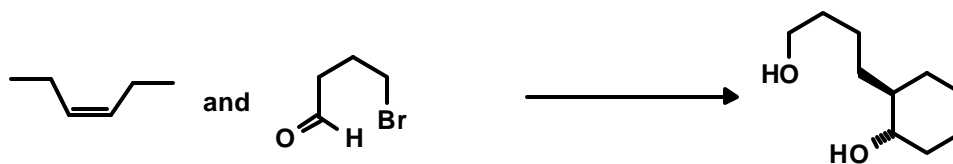
a.



b.

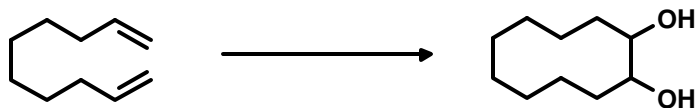


c.



Note: Mild aqueous acid treatment (at room temp) will *not* cause primary or secondary alcohols to eliminate

d.



**Bonus:** Using the chemistry you've learned in this course (or any chemistry, for that matter) design a method for the inversion of the configuration of an alkene. The solution I have in mind employs the chemistry of  $\text{PPh}_3$ .

