CHEM 330

Exam 2
November 23, 2015

Your name: _____

This document consists of 7 pages

This a closed-notes, closed-book exam

You may use your set of molecular models

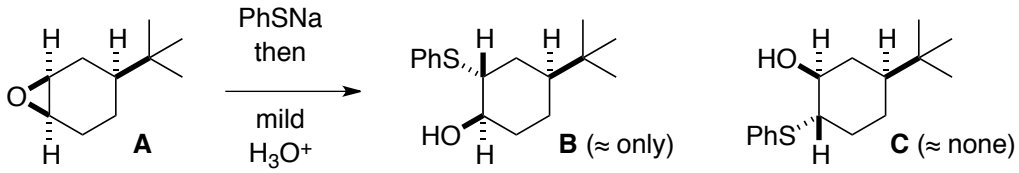
Time: 1.5 h

1. _____ / 20
2. _____ / 20
3. _____ / 20
4. _____ / 20
5. _____ / 20

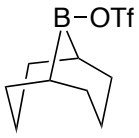
TOTAL _____ / 100

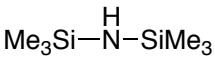
This exam counts for 25% of your CHEM 330 final grade

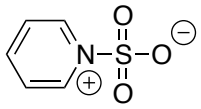
1. (20 pts.) Provide a rationale for the observation that the reaction of compound **A** with PhSNa produces essentially only **B** and virtually none of **C**.

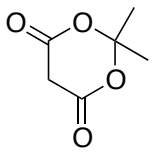


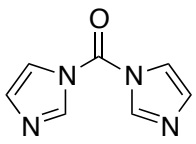
2. (20 pts.) Reagents **a-e** below find use in certain reactions discussed in class. Write a chemical equation that illustrates the use of each of these reagents (**do not write mechanisms**: just a reaction diagram for each).

a. 

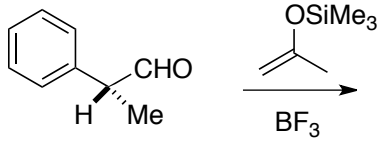
b. 

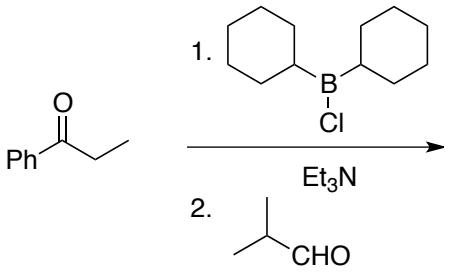
c. 

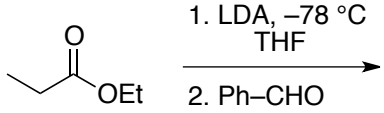
d. 

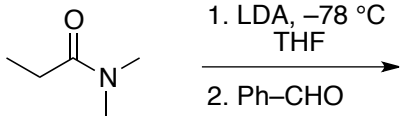
e. 

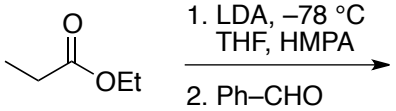
3. (20 pts.) Draw the structure of the major product expected from the reactions shown below. **Note**: it is understood that each reaction is subject to a final aqueous workup.

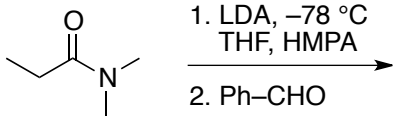
a. 

b. 

c. 

d. 

e. 

f. 

4. (20 pts.) Propose a method to achieve the transformations shown below. In each case, a multistep sequence (= not just one reaction, but several) may be required. Indicate all requisite reagents, in the correct order, as a numbered list above/below the reaction arrow. **Aqueous workups after each step are understood and there is no need to specify them.**

a.

b.

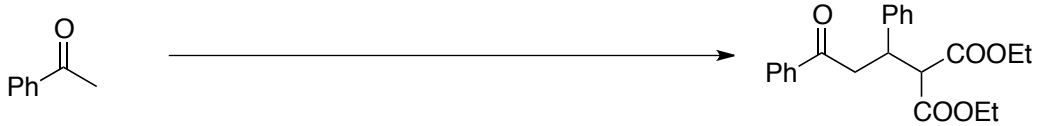
c

this enantiomer

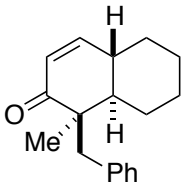
d.

this enantiomer

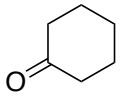
e.

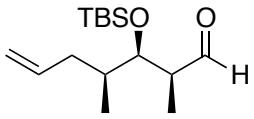


5. (20 pts.) Propose a method to synthesize the substances shown below from the indicated materials. Assume the availability of all reagents needed to convert the starting compound into the product (e.g, bases, alkyl halides, etc.). Present your answer as a flowchart. **It is not necessary to draw mechanisms**. **Also, aqueous workups after each step are understood.**

a. 

(racemic)

starting with 

b. 

(this enantiomer)

starting with