CHEM 330

Exam 2
November 19, 2004

Your name: _____

This a closed-notes, closed-book exam

The use of molecular models is allowed

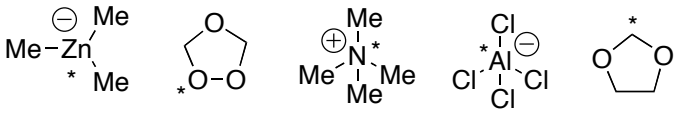
Time: 50 min

1. _____ / 10
2. _____ / 20
3. _____ / 40
4. _____ / 30

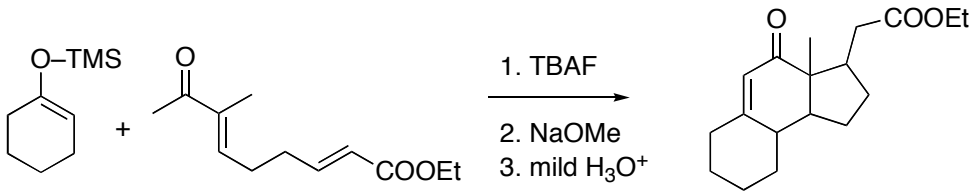
TOTAL _____ /100

This exam counts for 20% of your CHEM 330 final grade

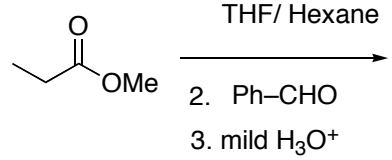
1. (10 pts.) Indicate the oxidation state of the starred atoms in the molecules shown below (write your answer in the box):

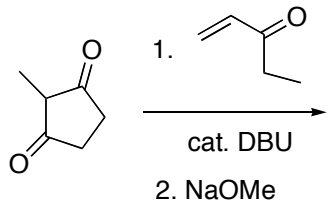


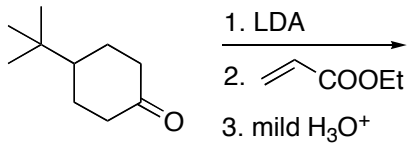
2. (15 pts.) Write an accurate mechanism for the following known reaction:

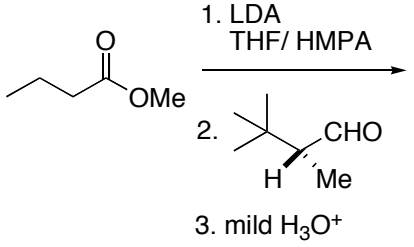


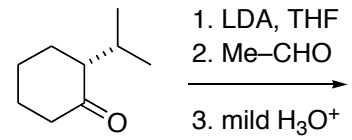
3. (40 pts.) Predict the structure of the major product expected from each of the following reactions:

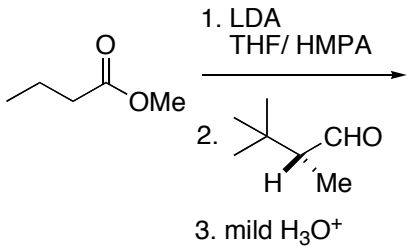
a. 

b. 

c. 

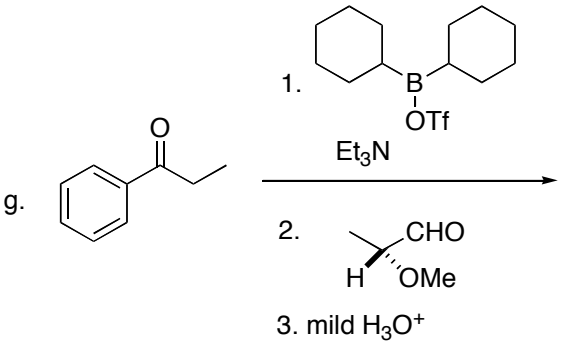
d. 

e. 

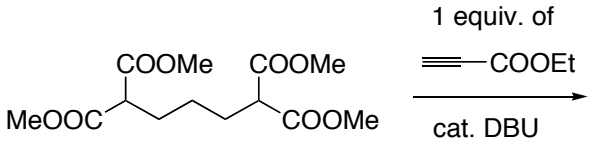
f. 

Problem 3 – cont'd

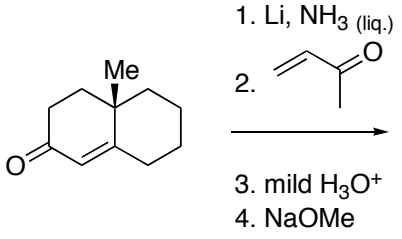
g.



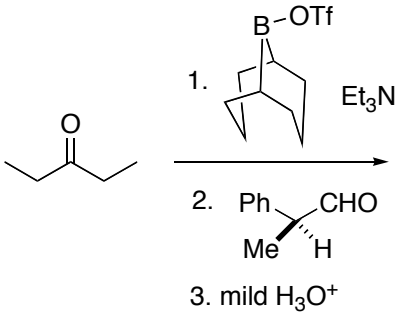
h.



i



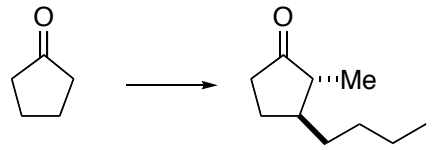
j.



4. (30 pts.) Indicate a method to accomplish the transformations shown below. In each case, a multistep sequence (= not just one reaction, but several) may be required. Assume the availability of all required reagents (e.g, bases, alkyl halides, etc.). Present your answer as a flowchart.

Note: (i) **It is not necessary to draw mechanisms**.
(ii) **All products are racemic**.

a.



b.