

Chem 634
Professor Fox
Exam 3
May 21, 2004
3 hours

Your Name _____

1. Provide reagents for the following transformations. Mechanistic details are not required, but be sure to indicate relative stereochemistry where necessary (six parts; 3 pts each). More than one step may be required.

a



b

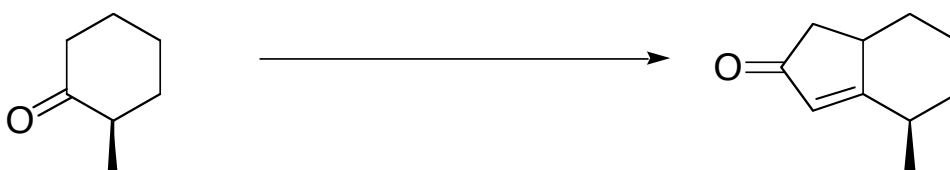


1. (continued)

c



d



1. (continued)

e

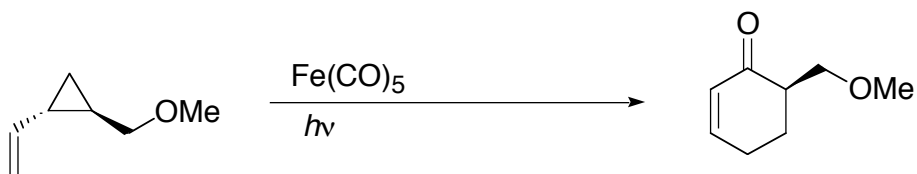


f

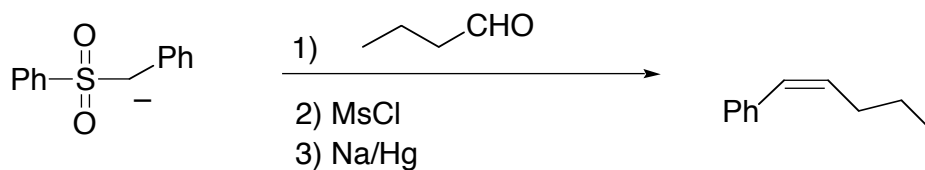


2. Predict if each of the following reactions would proceed as written. If you feel that the reaction would proceed, simply write "will proceed as written". If you feel that the reaction would not proceed as written, provide a brief but detailed explanation, and indicate the structure of the product(s) that would be formed instead of (or in addition to) the product that is drawn (3 points each).

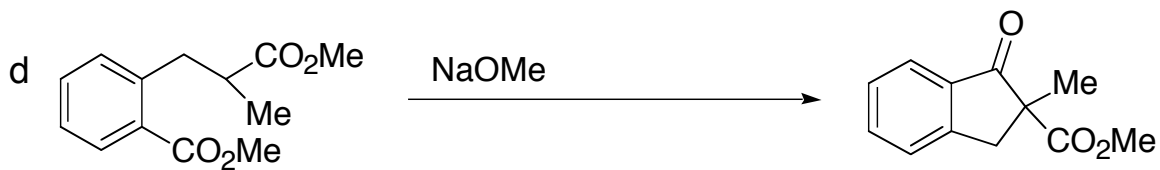
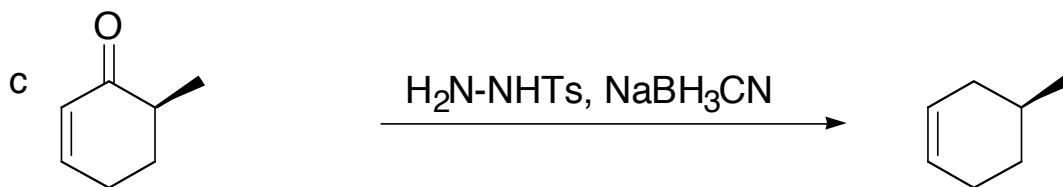
a



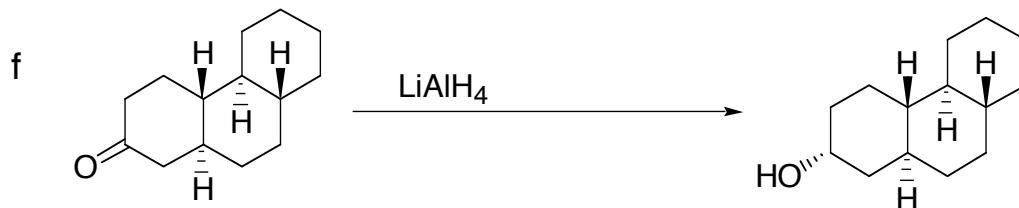
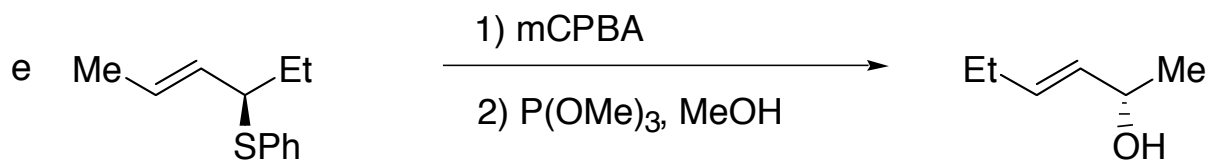
b



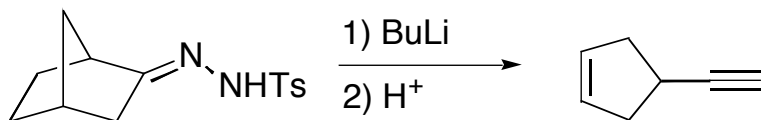
2. (continued).



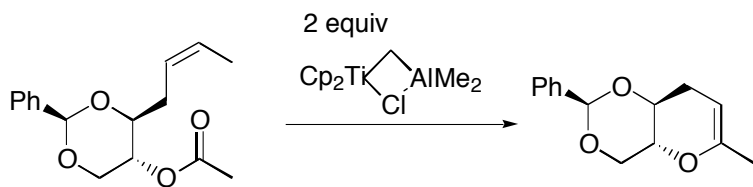
2. (continued).



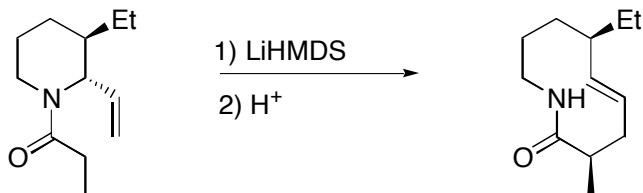
3. Provide a detailed arrow pushing mechanism (15 pts)



4. Provide a detailed arrow pushing mechanism (15 pts)



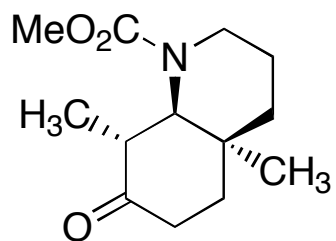
5. Consider the following reaction



LiHMDS = TMS₂NLi

- Provide an arrow pushing mechanism (5 pts)
- Propose a transition state model for the transformation (7 pts)
- Based on your answer to (b), what does the relative stereochemistry of the product tell you about the stereochemistry of the enolization. In other words, do you form the E or Z enolate. Explain your answer (7 pts)

5. Propose a synthesis using any acyclic materials



(15 pts)