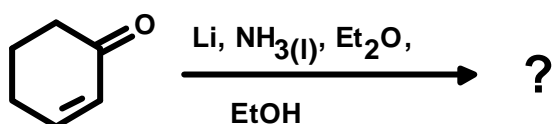


University of Windsor
School of Physical Sciences
Chemistry and Biochemistry

Chemistry 59-331/333
Test #3

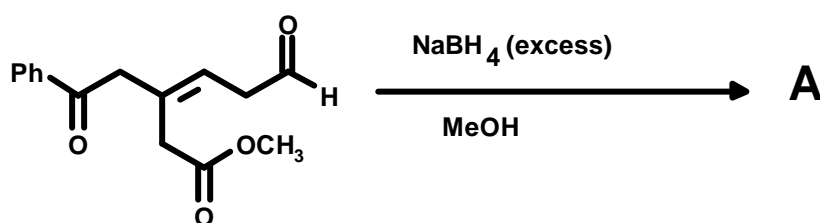
Mar. 31, 1999
50 minutes

1. Show the complete mechanism for the dissolving metal reduction of cyclohexenone (10 marks).

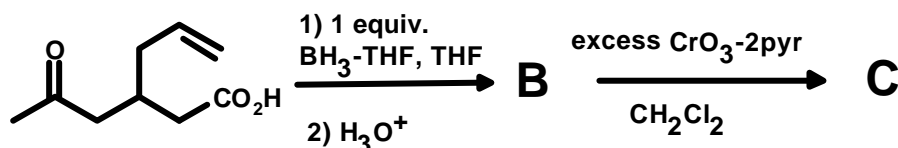


2. Indicate the structure of the major expected product of each of the following transformations. Include the product stereochemistry where it applies. Mechanisms are not necessary, but may be a help. (40 marks)

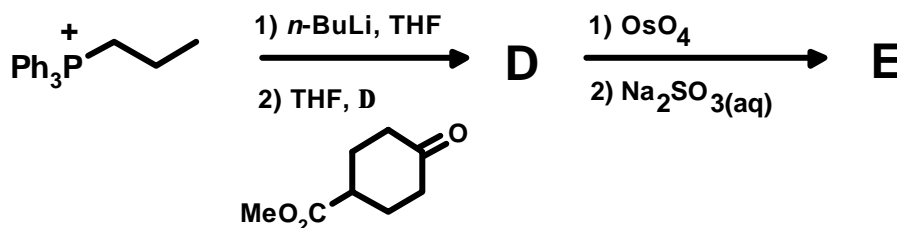
a.



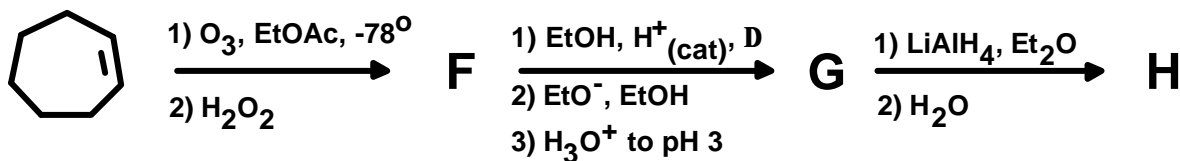
b.



c.

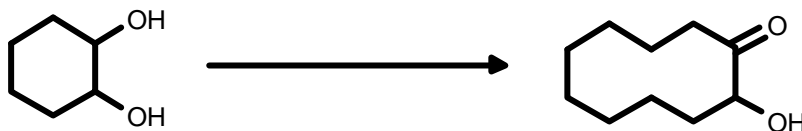


d.

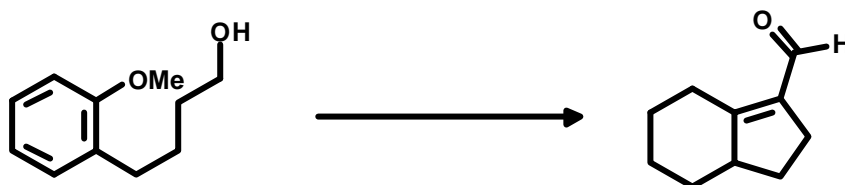


3. Show by equation how you would prepare the products illustrated from the given starting material. You may use any other reagent you deem fit. Show all reagents, conditions, and isolable intermediates. Mechanisms again are not necessary, but may be a help. **Do any three (3). (30 marks)**

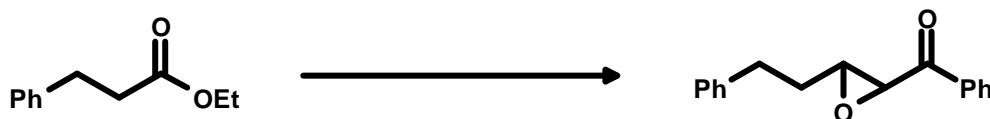
a.



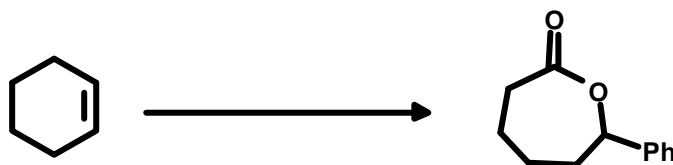
b.



c.



d.



Bonus An excellent way to convert ketones to alkenes (or even functionalized alkenes) is by the Shapiro reaction. It is clearly related to one of the reductions we've seen in this course. Propose a reasonable mechanism for this transformation.

