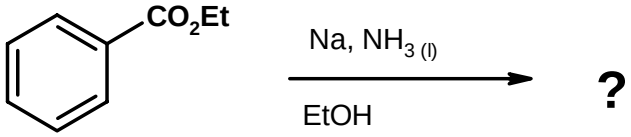
**Dept. of Chemistry and Biochemistry**
**School of Physical Sciences**

**59-331/333** **Mar. 27, 2002**
**Test #2** **Time: 50 minutes**

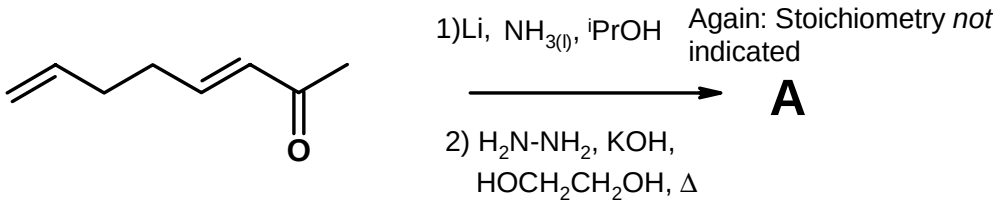
Answer all questions in the test booklet(s) provided. Answers written in pencil will be marked, but cannot be returned for remarking.

**1.** Give the complete mechanism for the dissolving metal reduction of the following ester. The stoichiometry (reagent ratio) is *not* indicated; it should be evident in your answer. (**10 marks**)

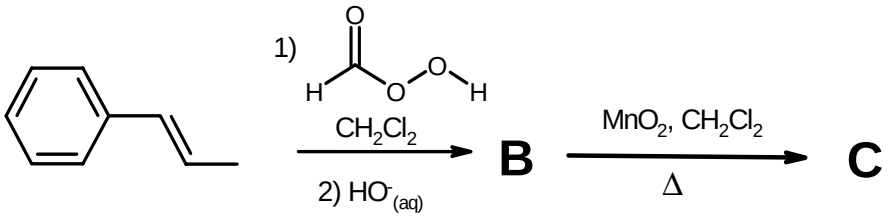



**2.** Indicate the structure of the expected major product from each of the following reactions. Include stereochemistry where it is relevant. Mechanisms are *not* necessary, but showing your work is likely to be a help. (**5 for each letter, 40 marks total**)

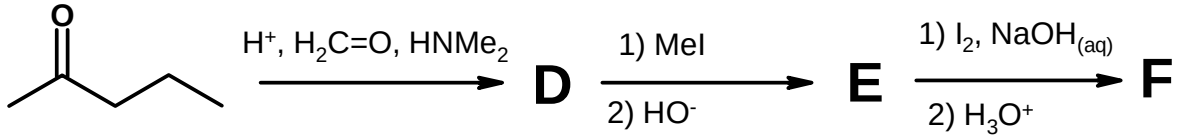
a)



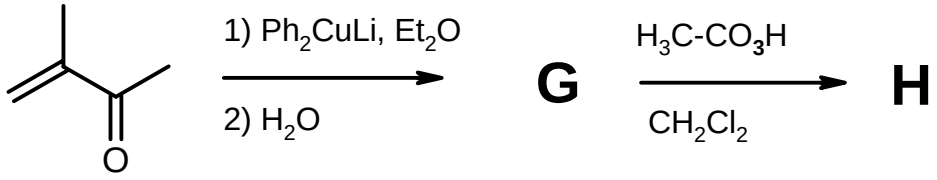

b)




c)

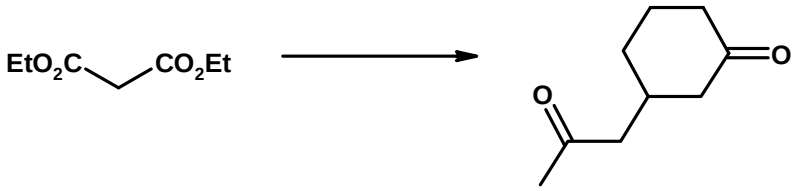


d)

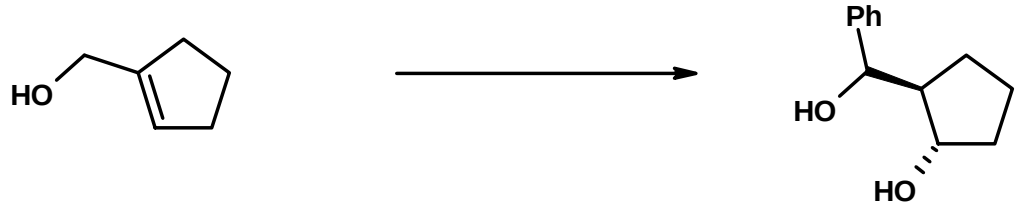



**3.** Show by equation how you would prepare the products illustrated below from the indicated starting material. You may use *any* other reagents you deem to be fit. Show all reagents, conditions, and *intermediates that could be isolated.* Mechanisms are not necessary, but showing your work may be a help. ***DO ANY THREE*** **(10 each, 30 total)**

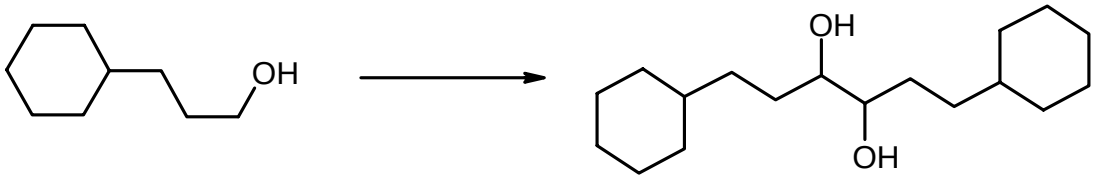
a)



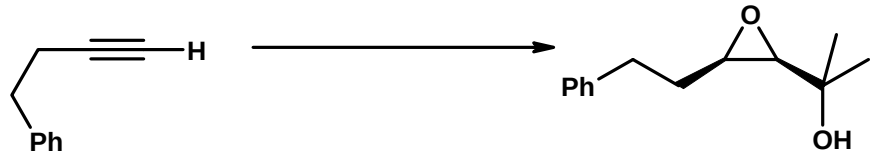

b)




c)




d)




**Bonus** Not only allylsilanes, but vinylsilanes also are electron rich enough to react with certain electrophiles. Predict the product of the transformation **and** give the mechanistic rationale for the reaction.