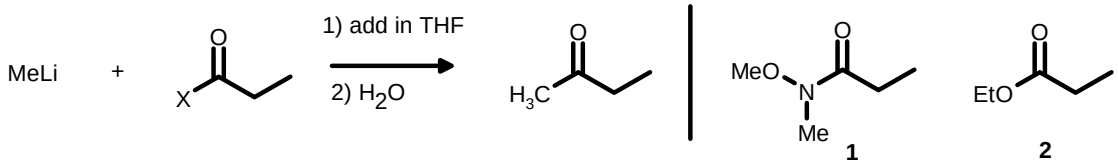
University of Windsor
School of Physical Sciences
Chemistry and Biochemistry

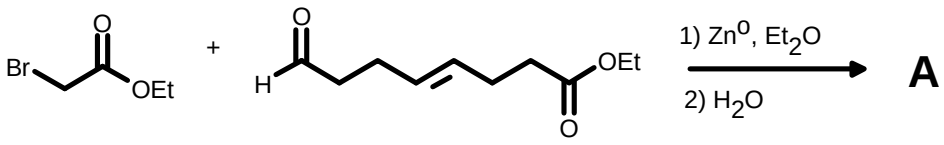
Chemistry 59-331/333 **Mar. 6, 1998**
Test #2 **50 minutes**

1. Explain in terms of mechanistic pictures (include structures) why the addition



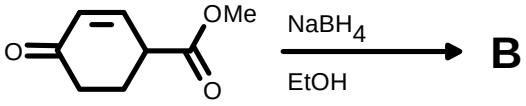
reaction shown below will work for substrate 1 but fail for substrates 2. Show all intermediates. (10)

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. (45)

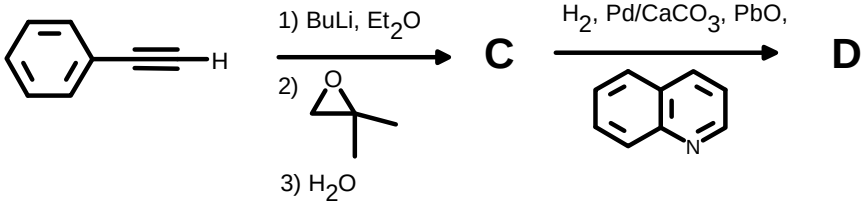


a.

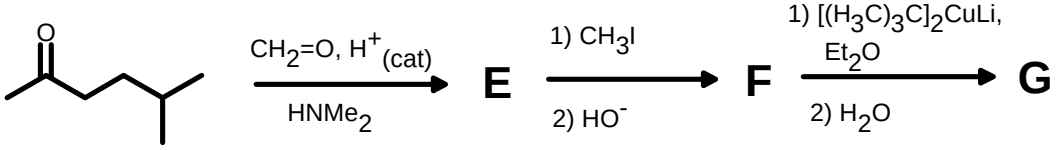
b.



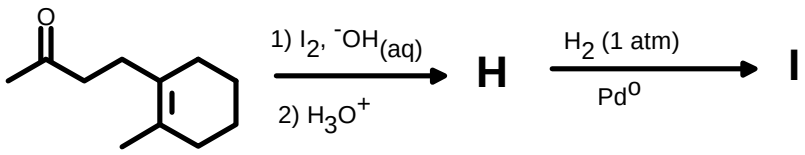
c.



d.

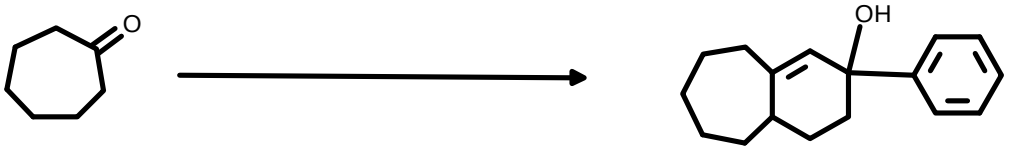


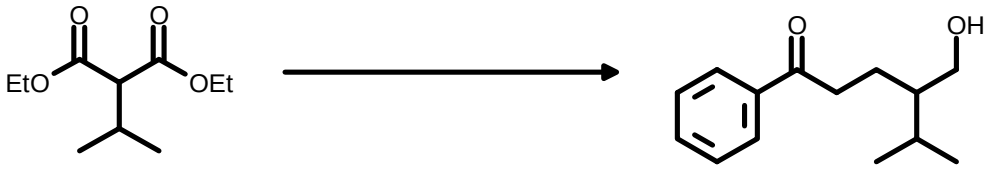
e.



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. (40)**

a.

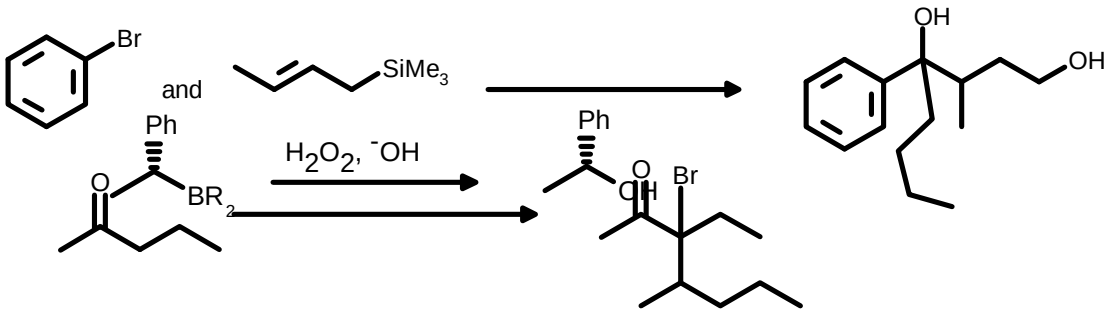




b.

c.

d.



Bonus **As was mentioned class, the conversion of an alkylborane to an alcohol is a mechanistically interesting process. Propose a reasonable mechanism for this; don't forget that this process goes with *retention* of configuration.**