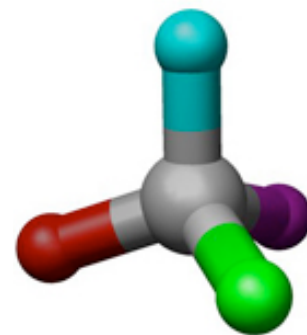
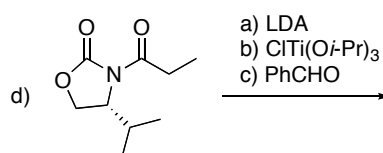
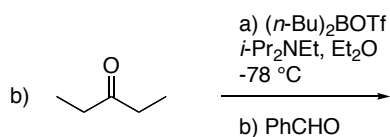
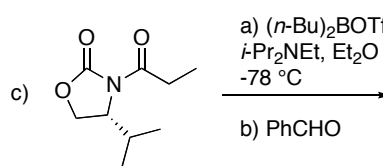
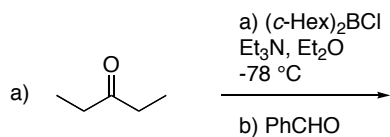


Chemistry 745 - Organic Synthesis

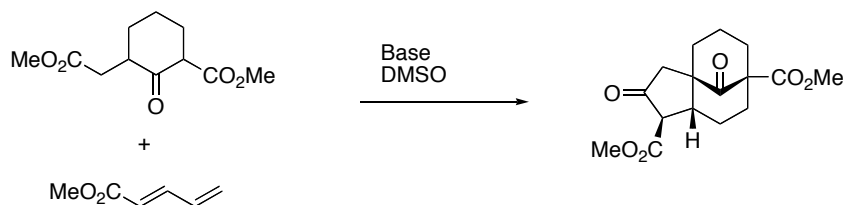
Homework 2 - Due Fri, Feb 27, 2015



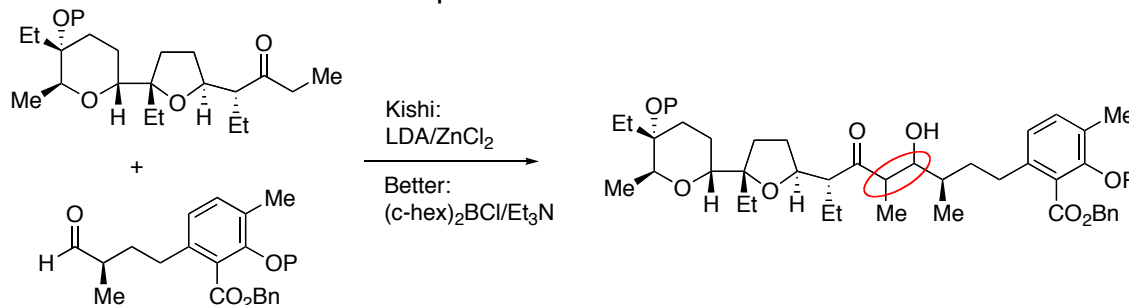
1. Predict the stereochemical outcome of the following Aldol reactions and explain.



2. The following multistep sequence was used by Danishefsky and coworkers to rapidly assemble the cyclopentanecyclooctane system shown (JACS, **1973**, 95, 2410). What is the mechanism for this reaction?



3. In the Kishi Lasalocid A synthesis, the illustrated aldol fragment coupling proceeded with only moderate stereoselectivity (JACS, **1978**, 2933). If you were planning this fragment coupling today, you would probably choose $(c\text{-hex})_2\text{BCl}/\text{NEt}_3$. What product stereochemistry would you expect from your reaction and what are the important considerations?



4. A paper by Hoffmann (Eur. J. Org. Chem. **2001**, 323) highlights important advances made by this laboratory over the years in enantioselective aldehyde allylboration. A typical reaction developed by Hoffmann is illustrated below. Draw a transition state that predicts the stereochemical outcome of the reaction. What is the stereochemistry?

