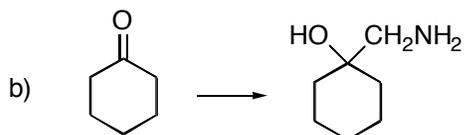
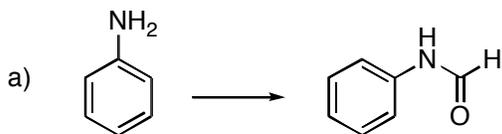


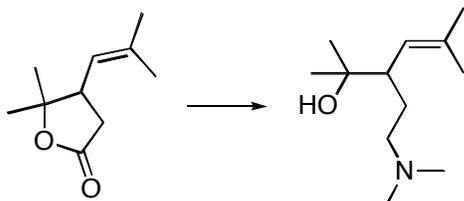
Problem Set #6

Due: November 13, 2006, 12:00 PM

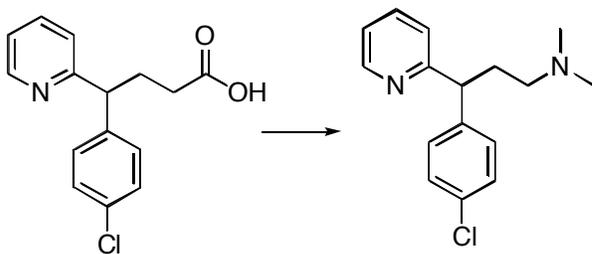
1. Show how you would accomplish the following syntheses in good yields.



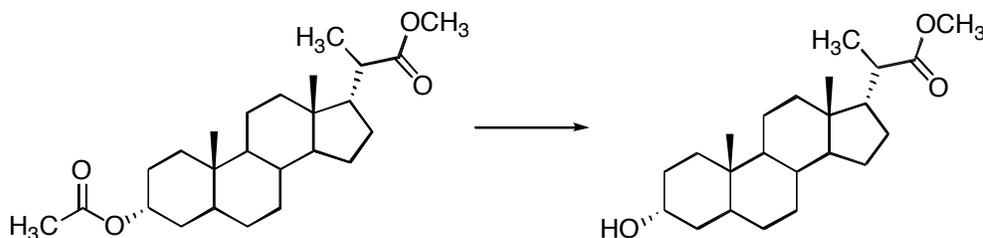
2. Propose a synthetic sequence to convert the given lactone into the following amine.



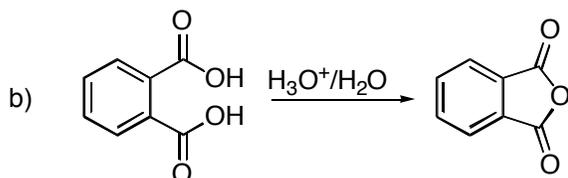
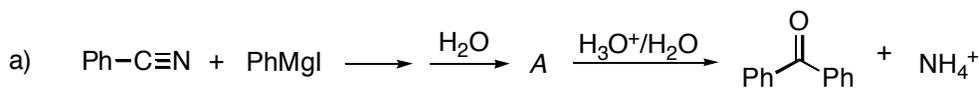
3. Show how you would synthesize chlorpheniramine, a powerful antihistamine used in several decongestants, from the given carboxylic acid.



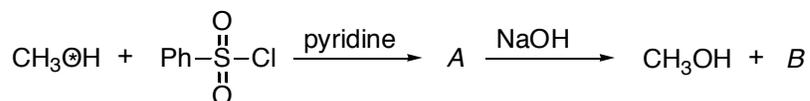
4. Show how you would carry out the following transformation in which the ester function at the lower left of the molecule is converted into a hydroxy group but the one at the upper right is preserved.



5. Propose reasonable mechanisms for the following reactions.



6. a) When methanol containing an oxygen-18 isotope is treated with benzenesulfonyl chloride in pyridine, a product *A* is formed. When *A* is treated with sodium hydroxide, methanol is formed again along with another product *B*, and the methanol contains none of the isotope. Identify products *A* and *B*.



b) When methanol containing an oxygen-18 isotope is treated with acetyl chloride in pyridine, a product *C* is formed. When *C* is treated with sodium hydroxide, methanol is formed again along with another product *D*, and the methanol contains all of the isotope. Identify the products *C* and *D*.

