

NAME (Print): _____

SIGNATURE: _____

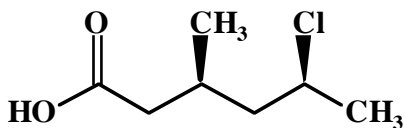
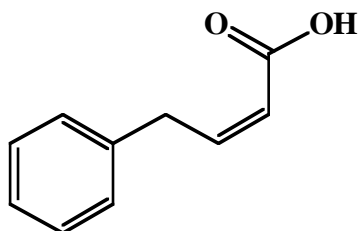
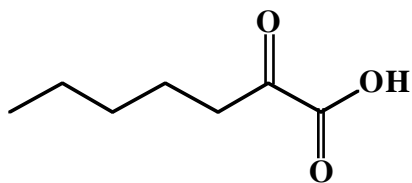
**Chemistry 310N
Dr. Brent Iverson
5th Homework
February 22, 2007**

**Please print the
first three letters
of your last name
in the three boxes**

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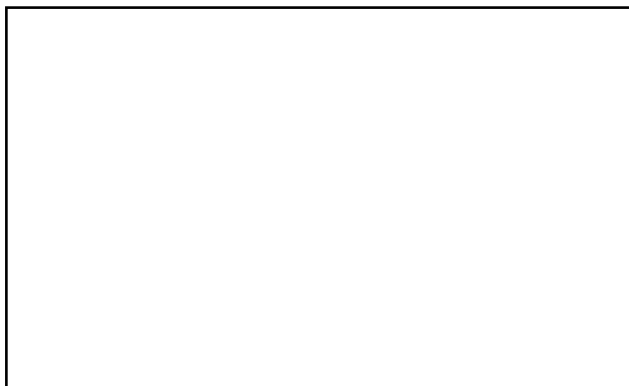
Score: _____

(4 pts each) Write the IUPAC name for each molecule on the line provided.

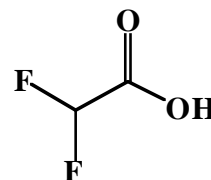
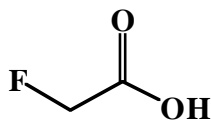
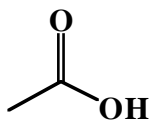
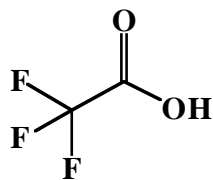


Draw a structure for the following molecule:

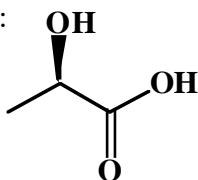
(R)-2-Cyclohexyl-2-hydroxyacetic acid



(4 pts) Rank the following from weakest to strongest acid, with a 4 under the weakest acid and a 1 under the strongest acid.



(2 pts each) Consider the following acid:



pKa = 3.08

In the space provided, draw the predominant form of this acid in water at pH 10.0



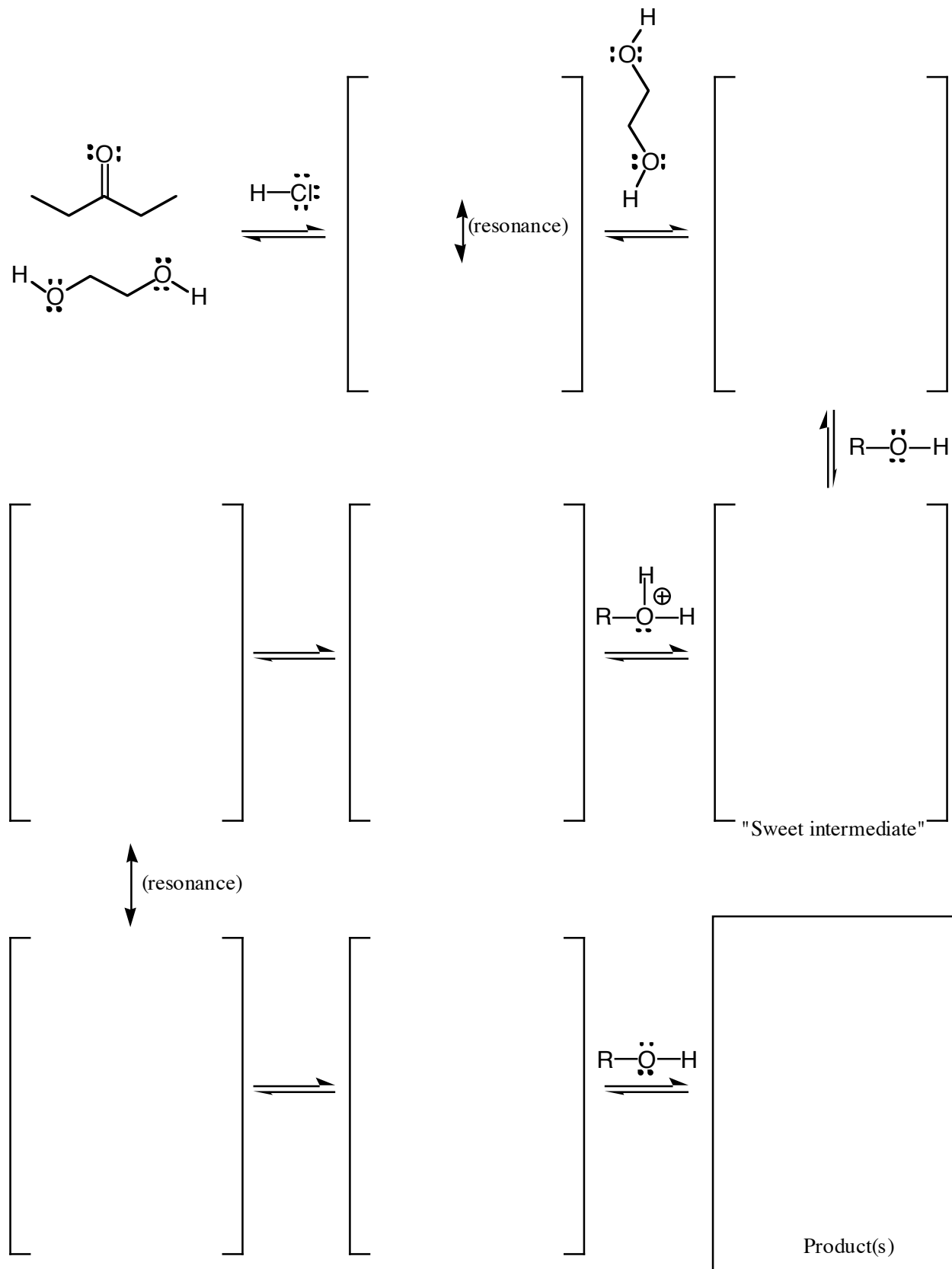
In the space provided, draw the predominant form of this acid in water at pH 7.0



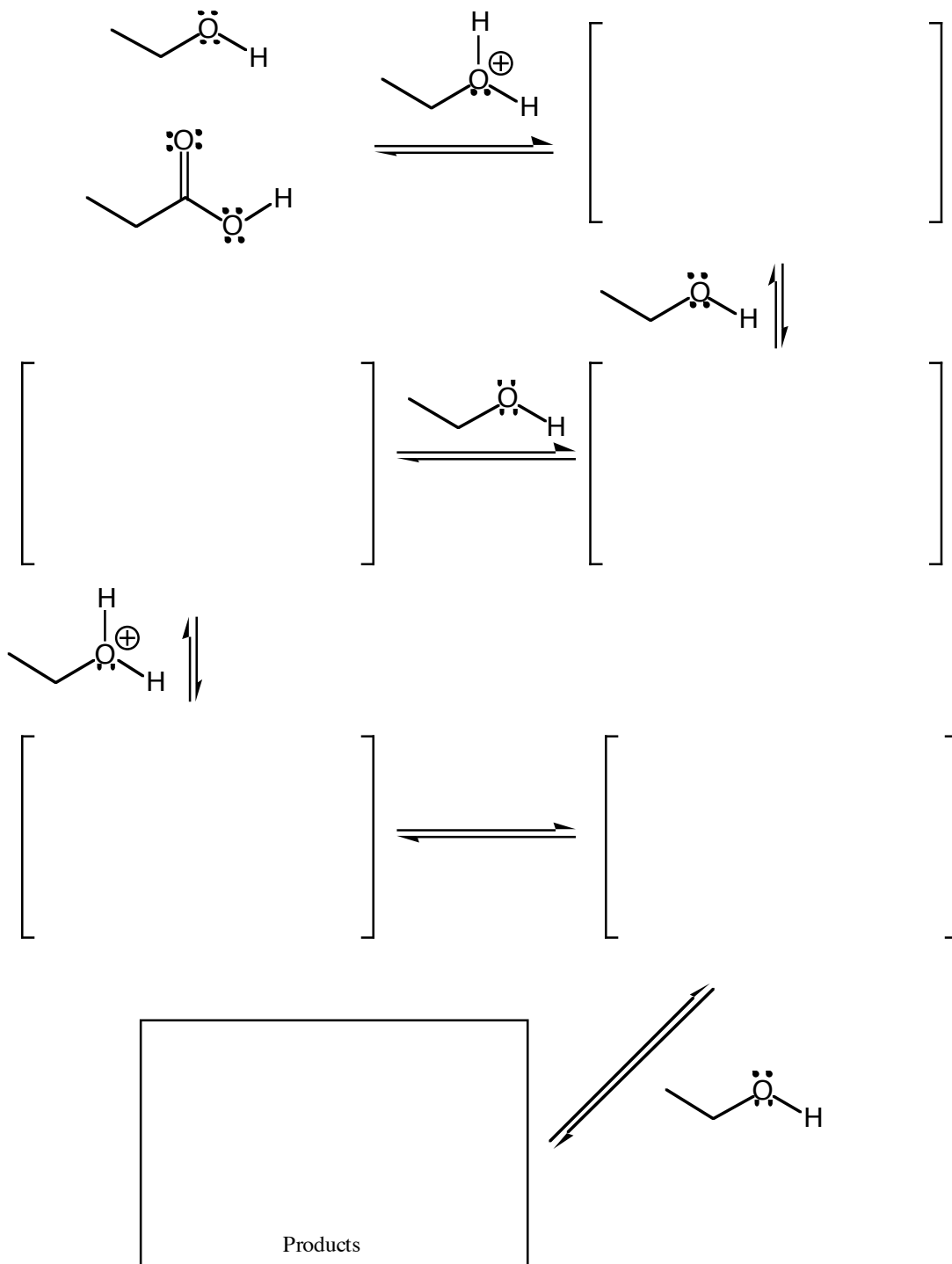
In the space provided, draw the predominant form of this acid in water at pH 1.0



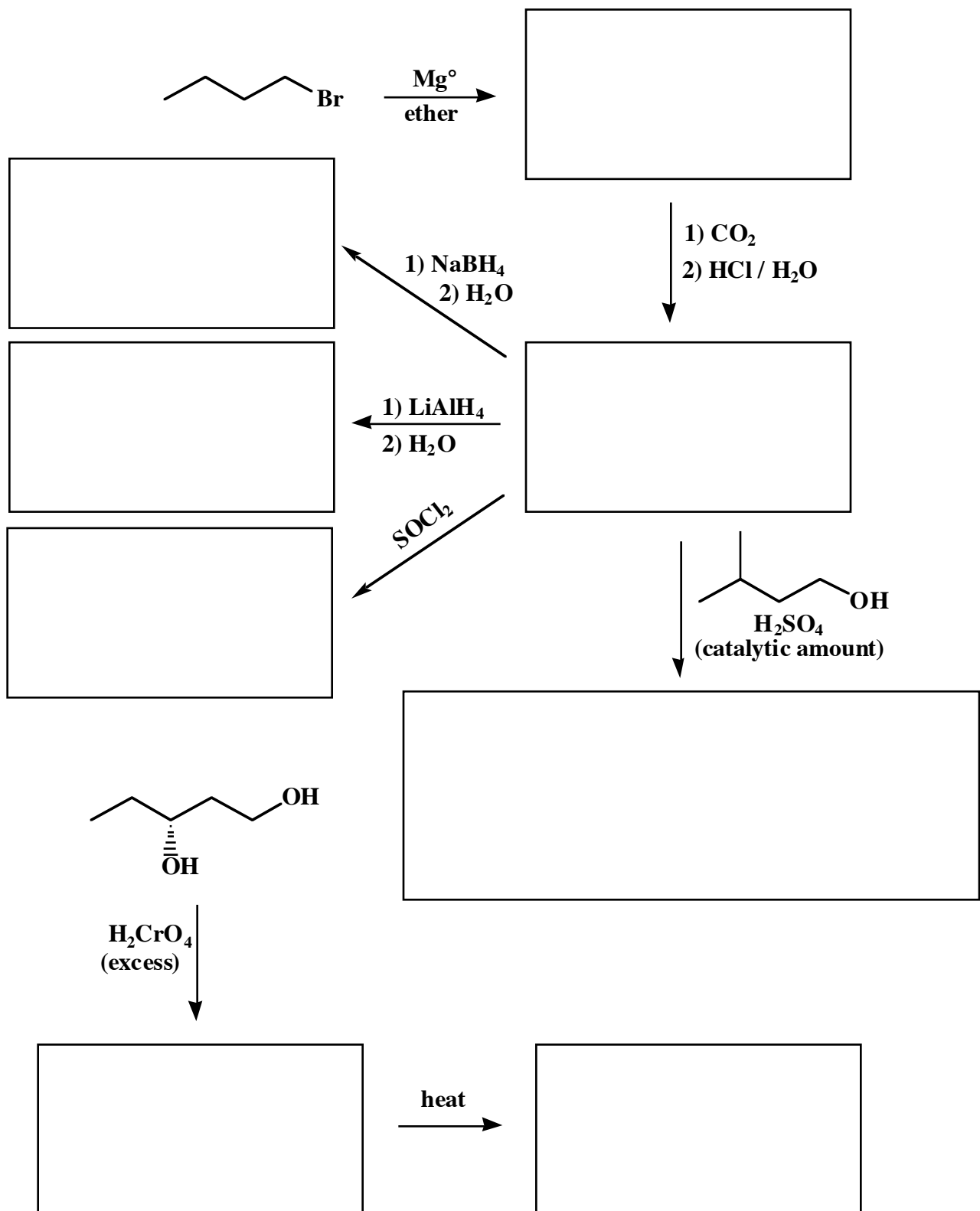
(27 pts.) Complete the mechanism for the following cyclic acetal formation reaction. **Be sure to show arrows to indicate movement of all electrons, write all lone pairs, all formal charges, and all the products for each step.**



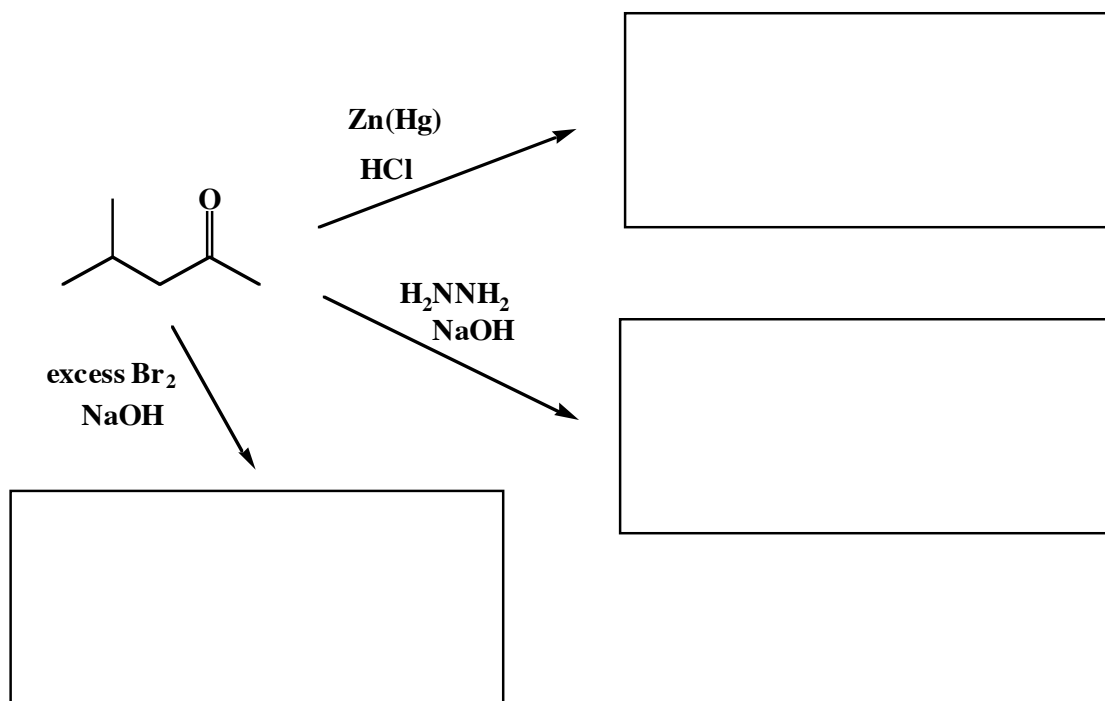
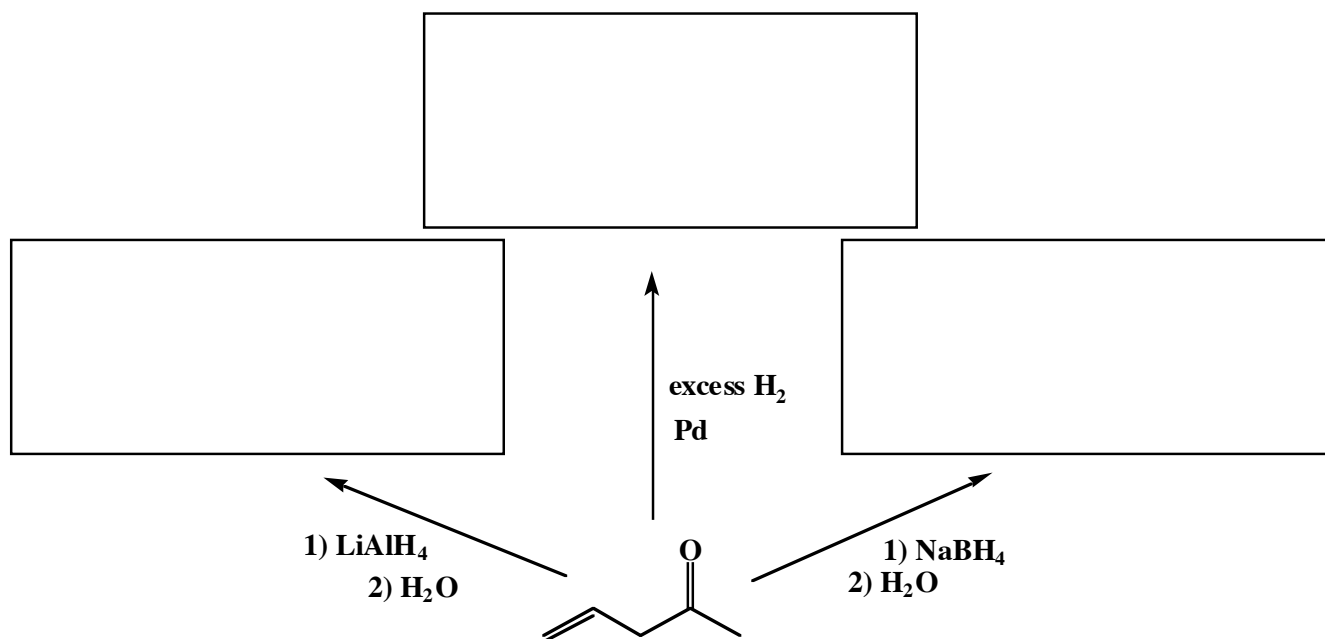
(26 pts.) Complete the mechanism for Fischer esterification. **Be sure to show arrows to indicate movement of all electrons, write all lone pairs, all formal charges, and all the products for each step.**



(3 or 5 pts each) Fill in the box with the product or products that are missing from the following chemical reaction equations. When a racemic mixture is formed, **you must write "racemic" under both structures EVEN THOUGH YOU DREW BOTH STRUCTURES**. For these draw all carbon containing products.



(3 or 5 pts each) Fill in the box with the product or products that are missing from the following chemical reaction equations. When a racemic mixture is formed, **you must write "racemic" under both structures EVEN THOUGH YOU DREW BOTH STRUCTURES**. For these draw all carbon containing products.



These are synthesis questions. You need to show how the starting material can be converted into the product(s) shown. You may use any reactions we have learned. Show all the reagents you need. Show each molecule synthesized along the way and be sure to pay attention to the regiochemistry and stereochemistry preferences for each reaction.

(15 pts) **All of the carbon atoms of the products must come from the starting material for this one!**

