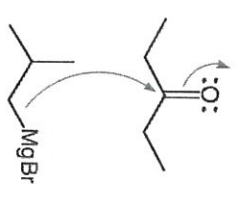
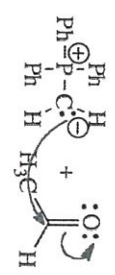


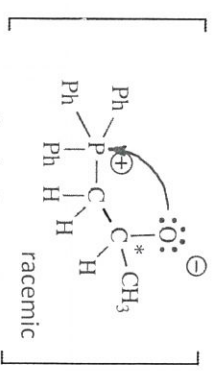
5.



6.

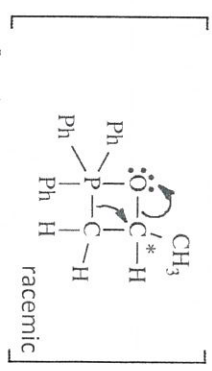


Betaine intermediate

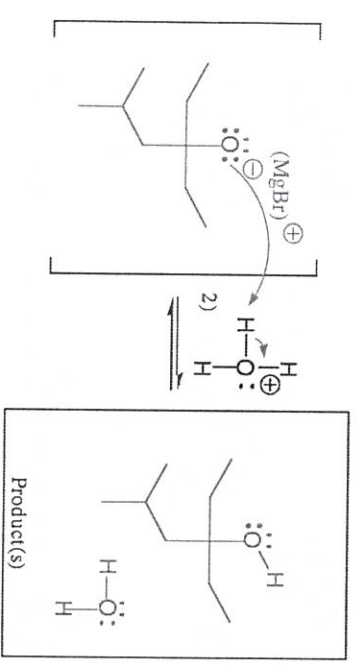


racemic

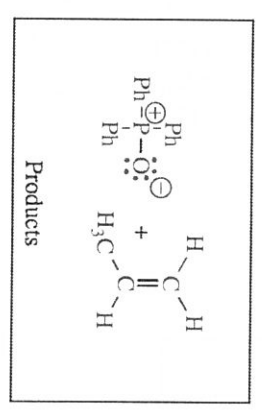
Oxaphosphetane intermediate



racemic

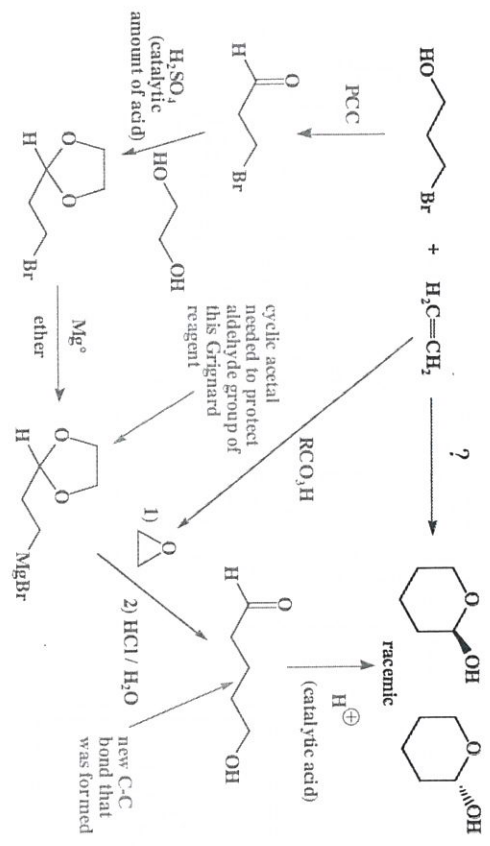


Product(s)

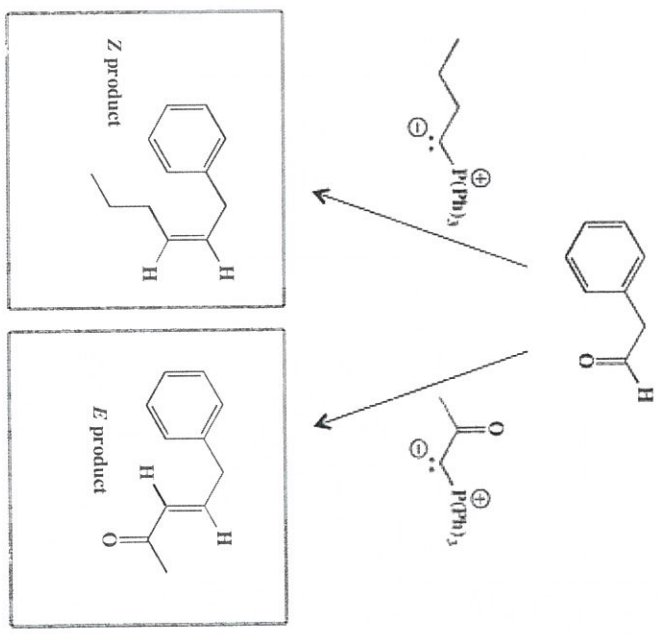


Products

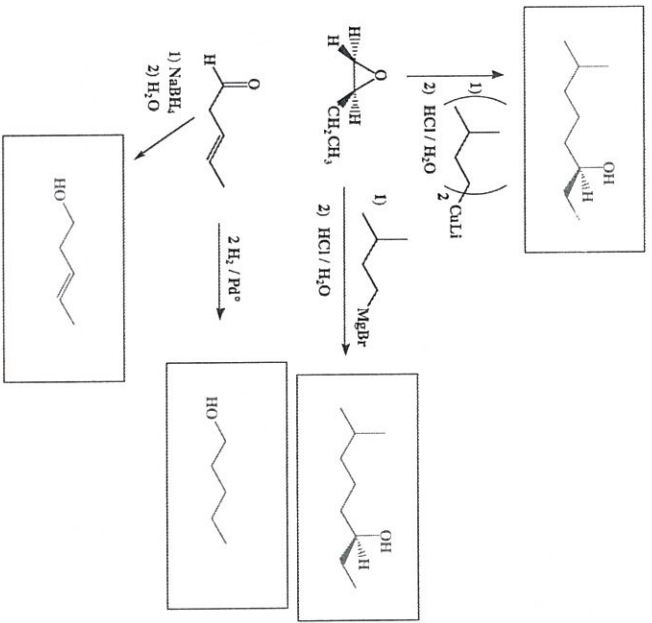
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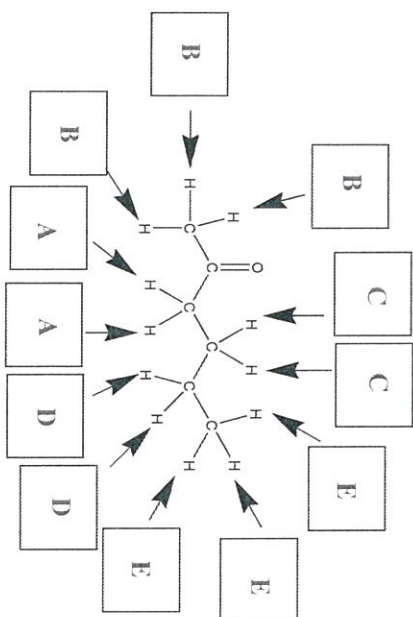
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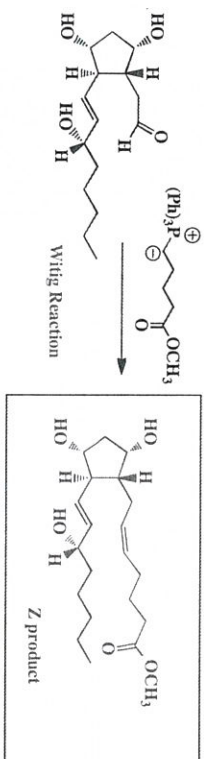
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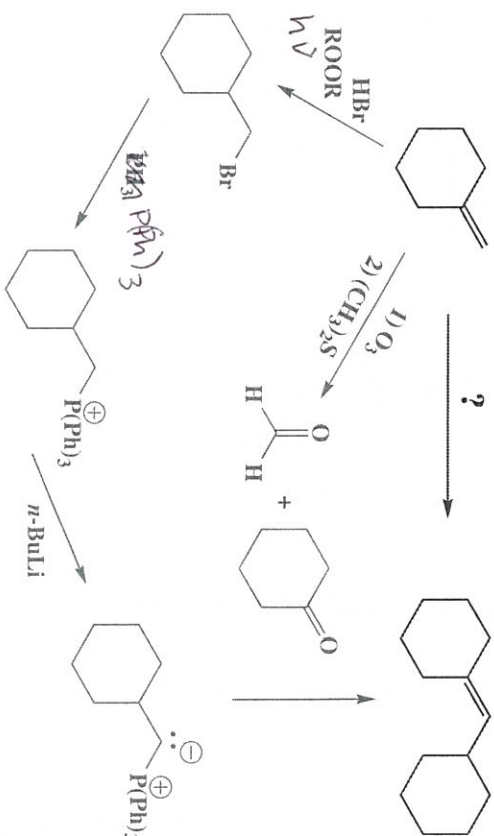
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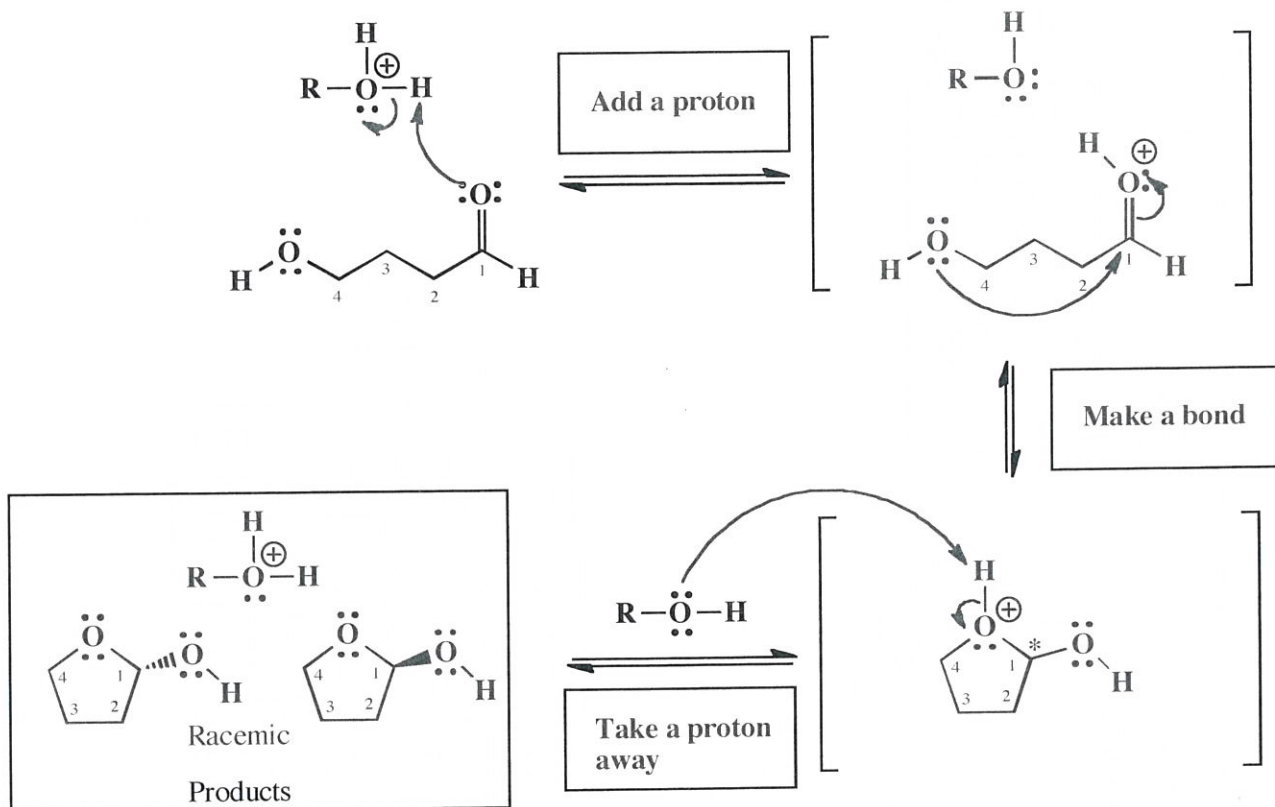
11.



12.



12. (17 pts.) Complete the mechanism for the following 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. Remember, I said all the products for each step. IF A NEW CHIRAL CENTER IS CREATED IN AN INTERMEDIATE, MARK IT WITH AN ASTERISK. IF A CHIRAL CENTER IS CREATED IN THE PRODUCTS YOU NEED TO DRAW BOTH ENANTIOMERS, AND LABEL THE PRODUCT MIXTURE AS RACEMIC IF RELEVANT. I realize these directions are complex, so please read them again to make sure you know what we want.



(3 pts) In the boxes provided adjacent to the first two sets of arrows, write which of the four basic mechanistic elements are involved (i.e. "Make a bond", "Add a proton", etc.

↑↑      ↑↑      ↑↑      ↑↑  
 NOTICE THIS    NOTICE THIS    NOTICE THIS    NOTICE THIS  
 ↓↓      ↓↓      ↓↓      ↓↓

(4 pts) In one sentence, state whether the pH changes during this reaction, and why or why not that is the case.

The pH DOES NOT CHANGE during the reaction because there is no net change in the concentration of protons (i.e. it is catalytic in acid).