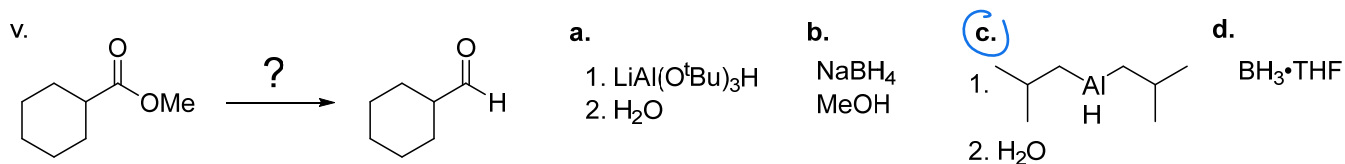
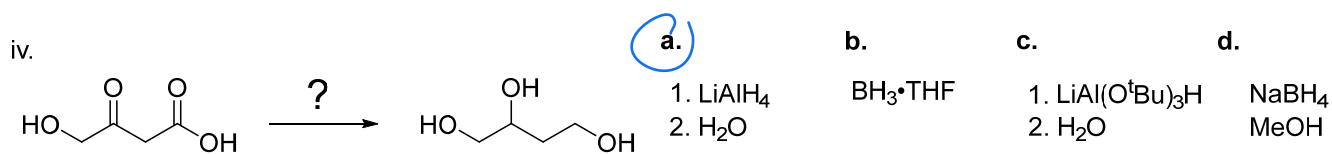
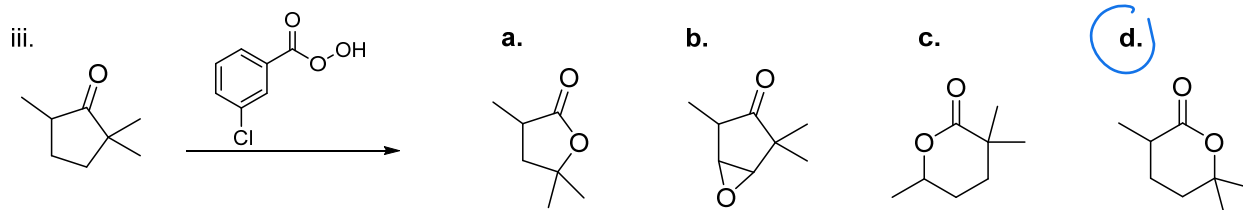
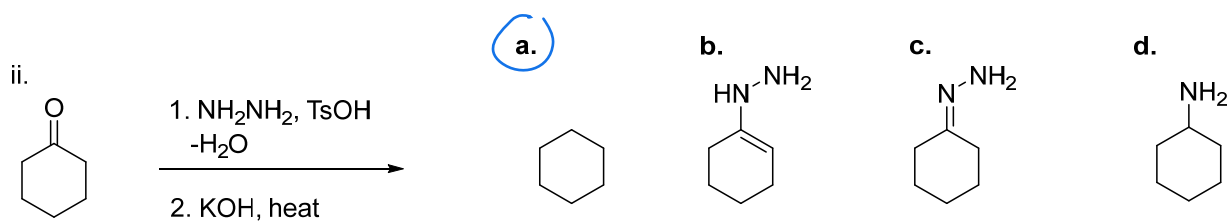
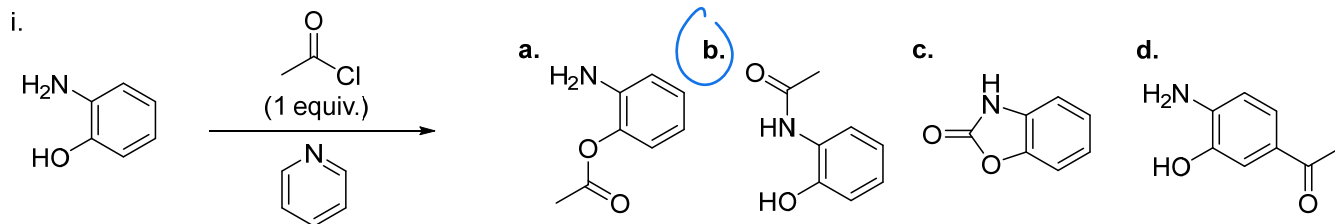
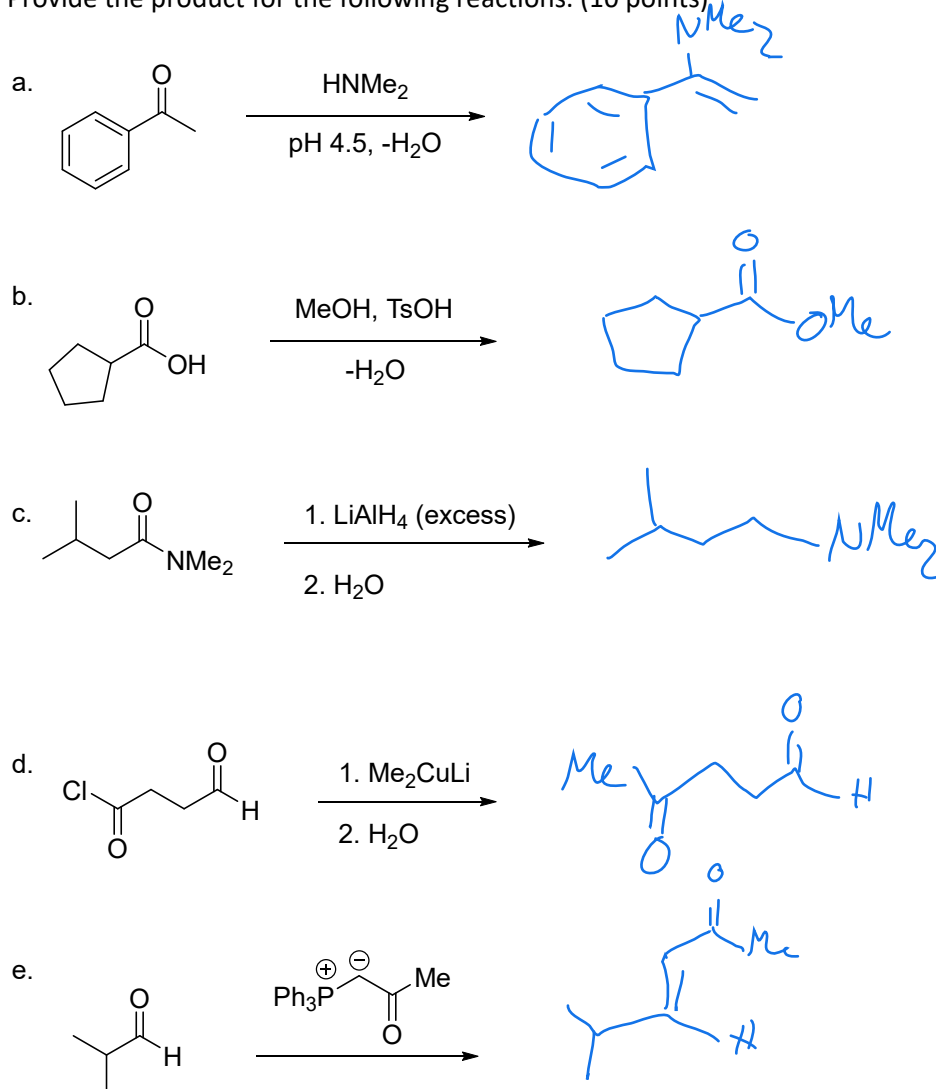


Name: \_\_\_\_\_

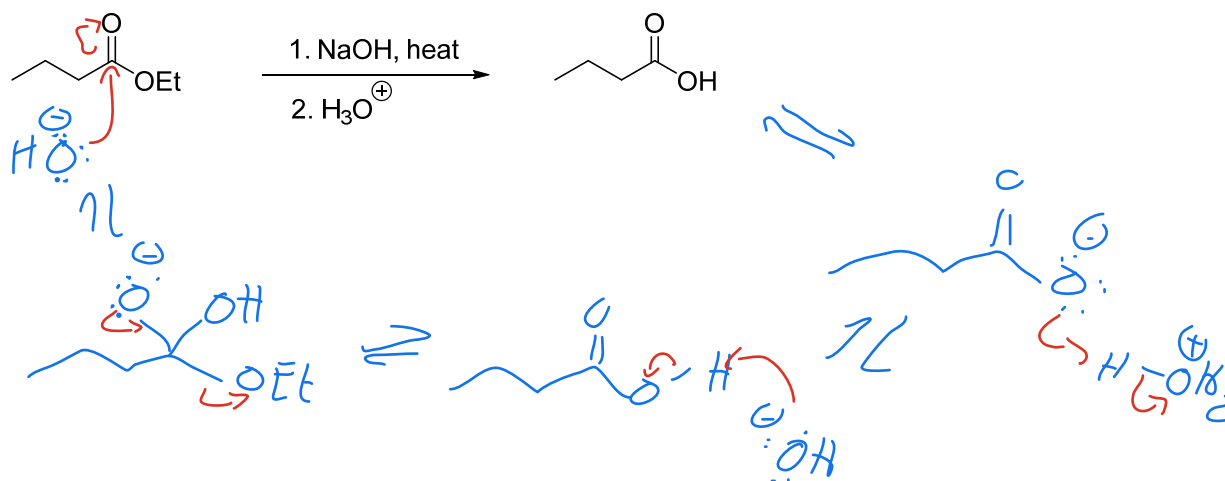
## 1. Circle the correct solution for each question. (10 points)



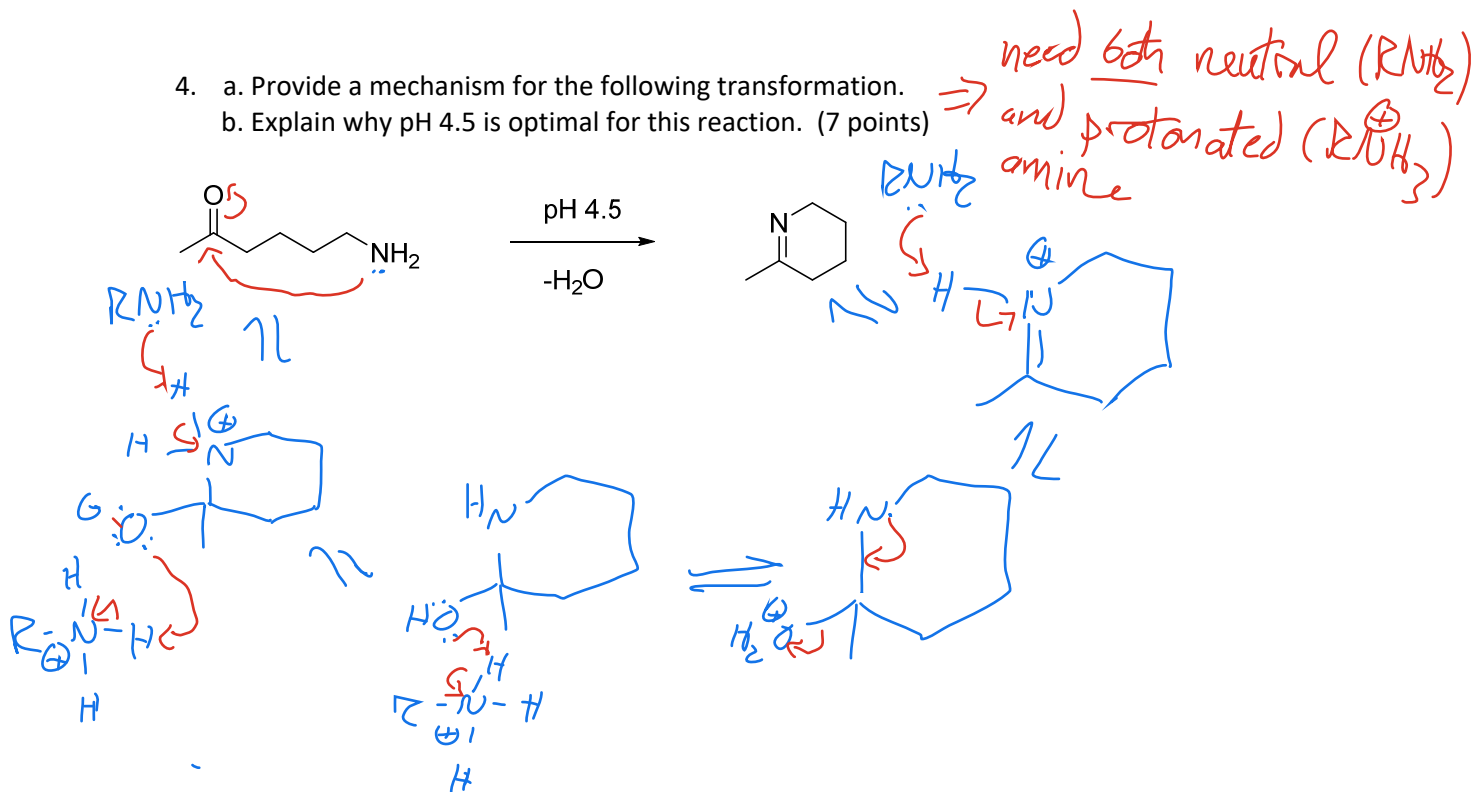
2. Provide the product for the following reactions. (10 points)



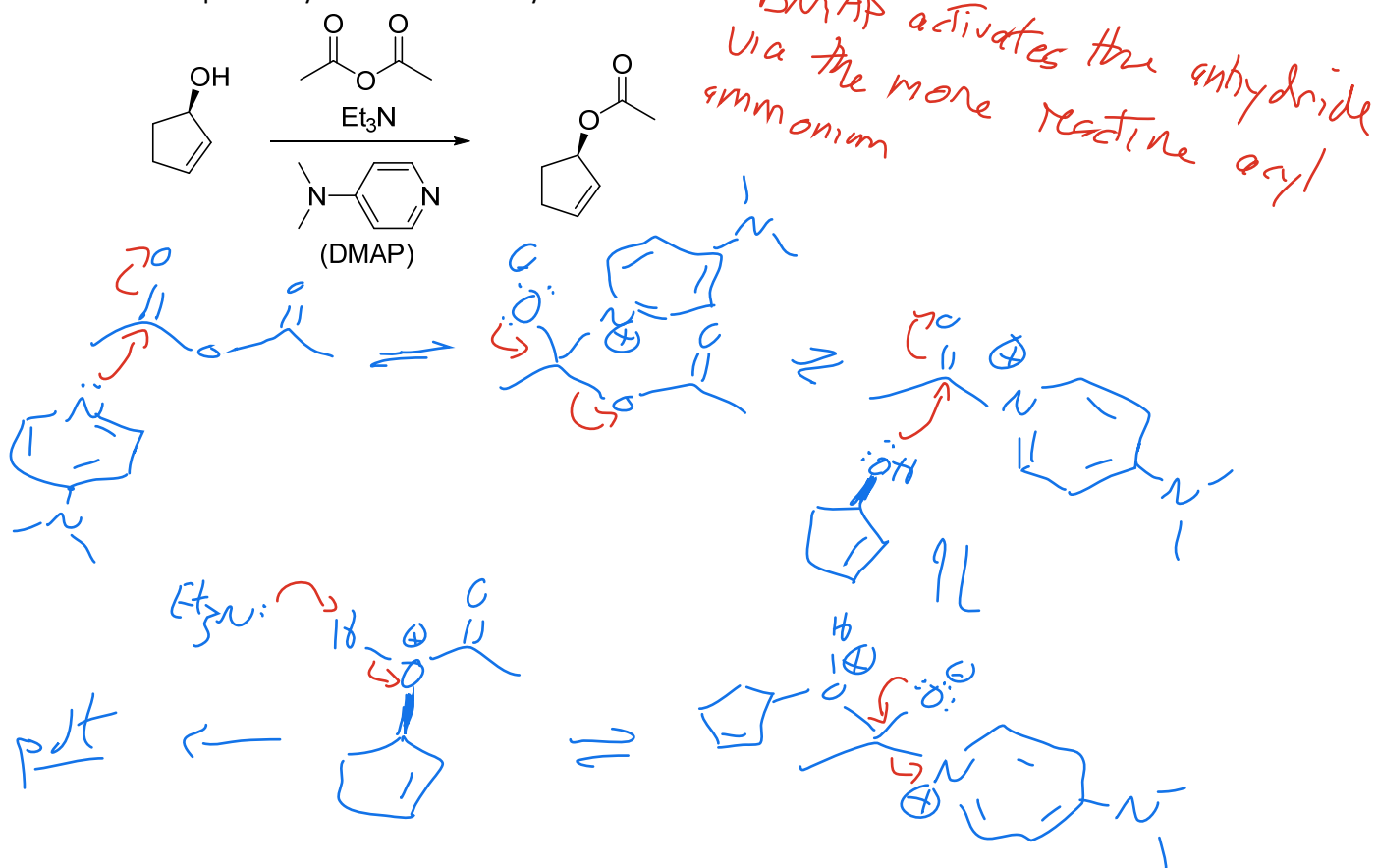
3. Provide a mechanism for the following transformation. (4 points)



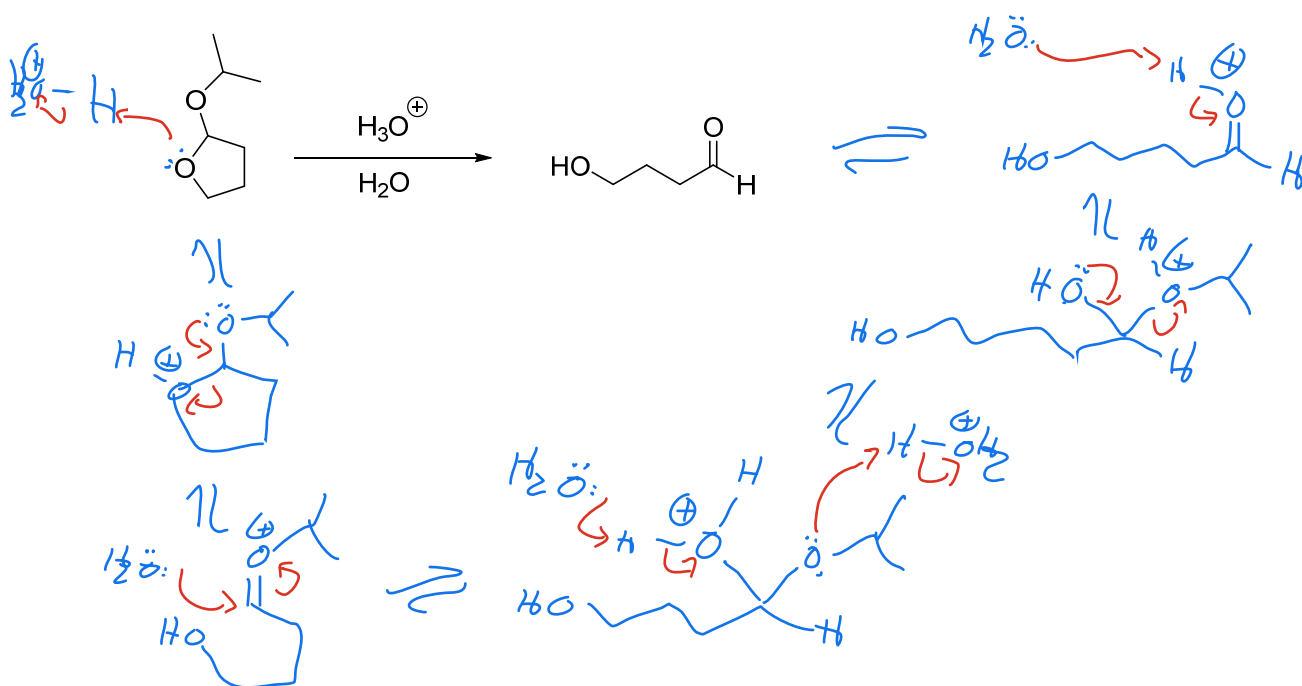
4. a. Provide a mechanism for the following transformation.  
b. Explain why pH 4.5 is optimal for this reaction. (7 points)



5. a. Provide a mechanism for the following transformation. (6 points)  
b. Explain why DMAP is necessary for this reaction.

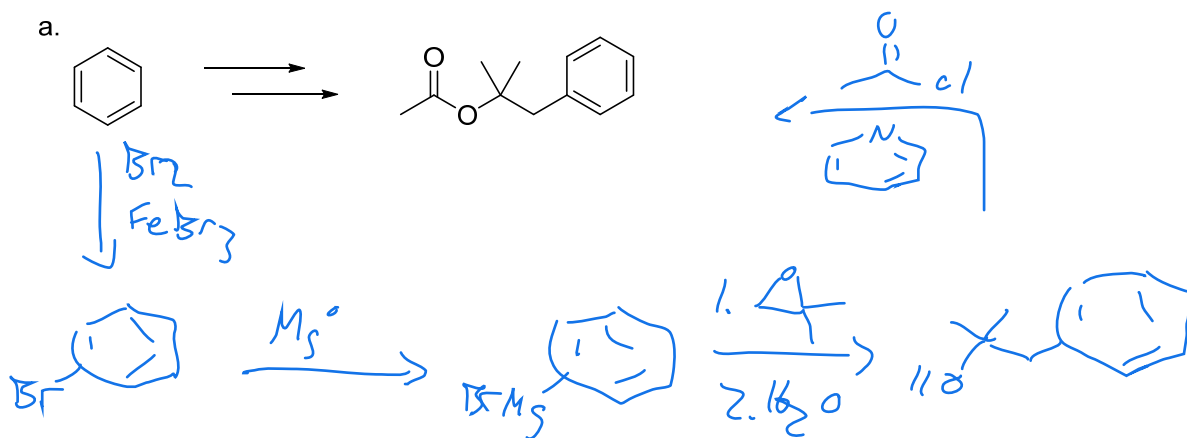


6. Provide a mechanism for the following reaction. (7 points)



7. Provide a synthesis for the following transformations. (8 points)

a.



b.

