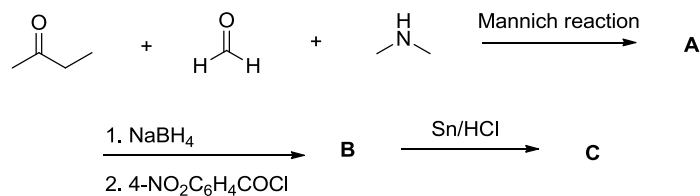


## Problems - Set 10: Carbonyl compounds (Part IV)

### Problem 1

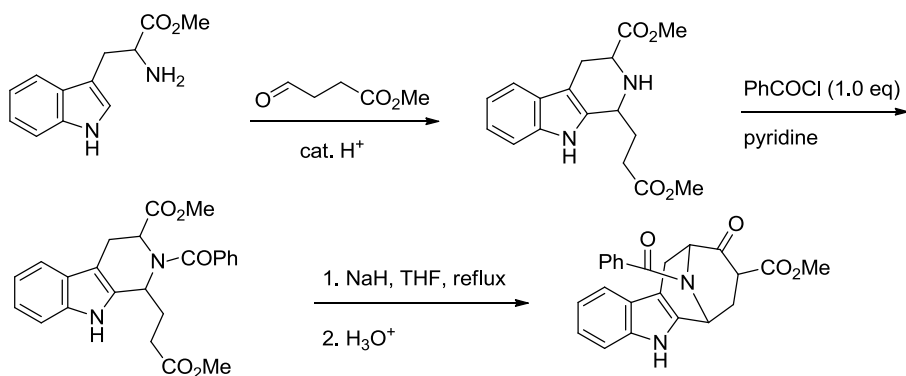
Find the missing compounds to complete the following transformations and give the mechanisms:



**Note:**  $\text{NO}_2$  groups can be reduced to  $\text{NH}_2$  in acidic conditions under the presence of metals such as Fe, Sn or  $\text{SnCl}_2$ ,  $\text{FeCl}_2$ ...

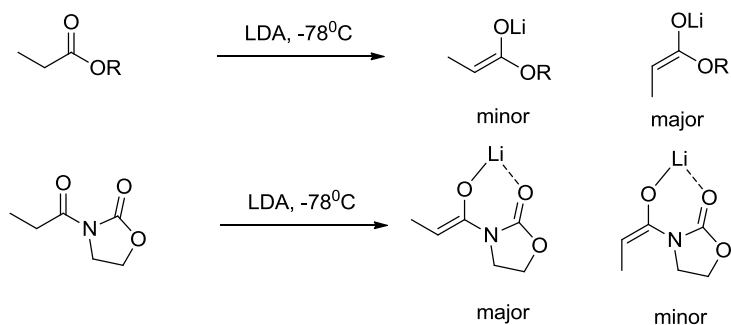
### Problem 2

Suggest the mechanisms and try to justify the selectivity issues.

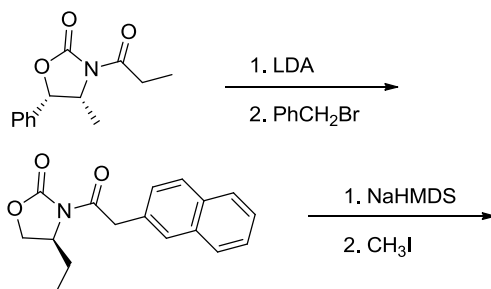


### Problem 3

Explain these observations.

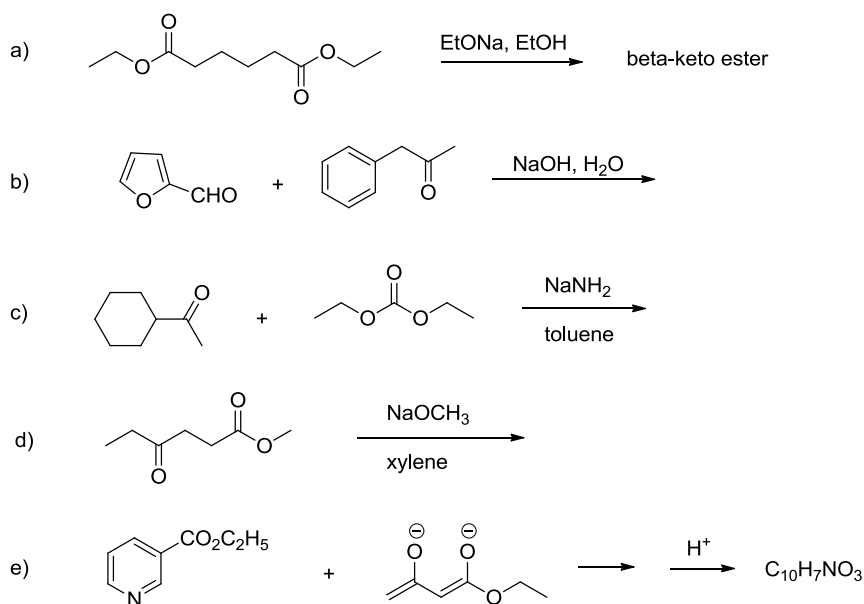


Apply these observations to find the structure of the products (with the absolute configurations!) of the following reactions:



#### Problem 4

Predict the product formed in each of the following reactions.



#### Problem 5

Indicate reaction conditions or a sequence of reactions that could form the products.

