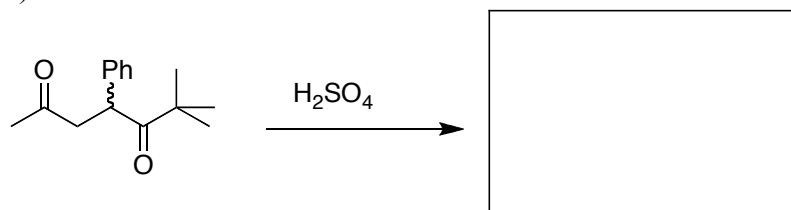


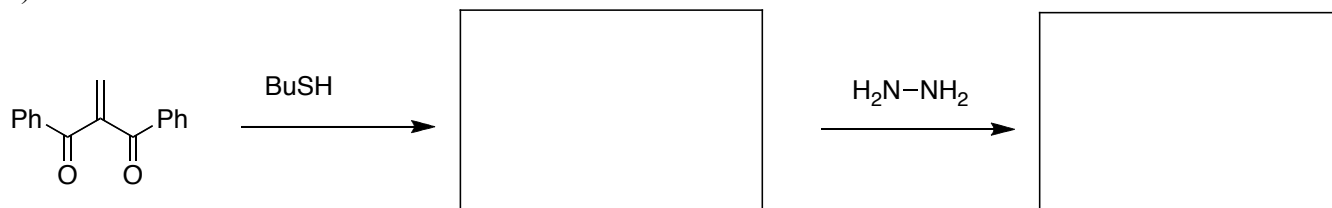
Problem set 6
Chapters 43 and 44.

1. Fill in the boxes with the reagents required to produce the stereoisomer shown, or with the MAJOR stereoisomer produced by the reaction conditions given. For **all structures**, indicate whether the structure is achiral, a single enantiomer, or racemic.

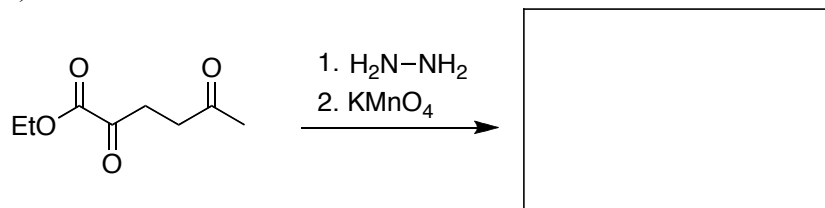
a)



b)



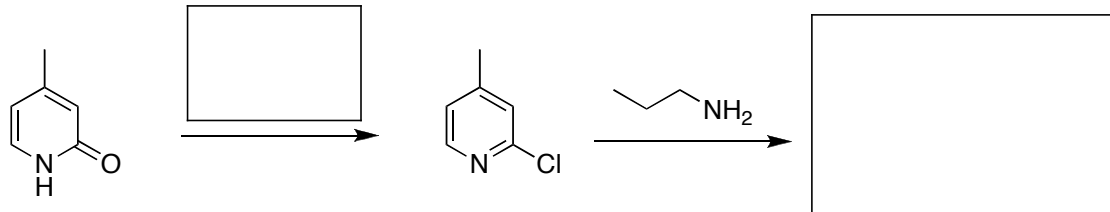
c)



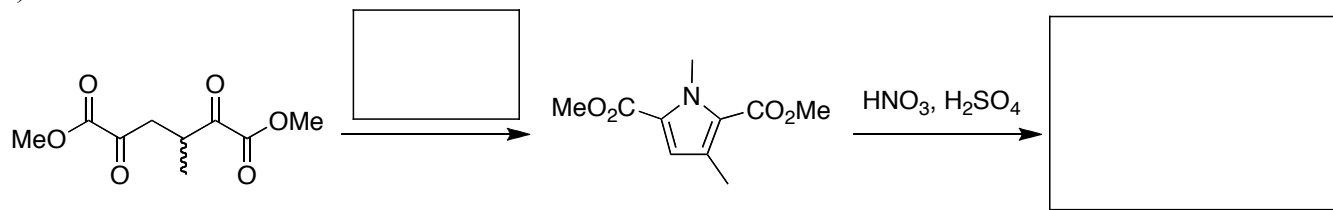
d)



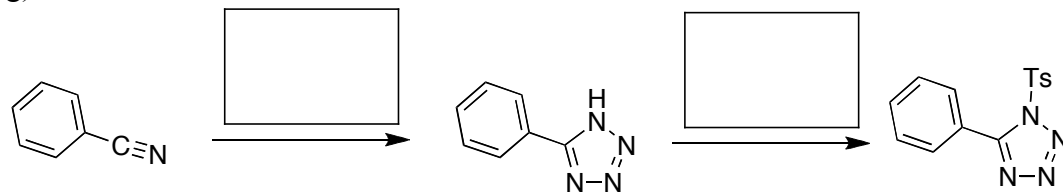
e)



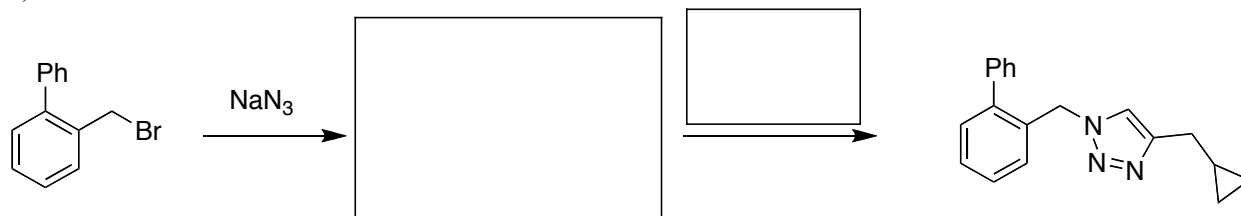
f)



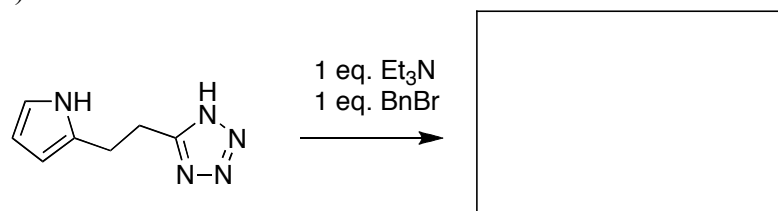
g)



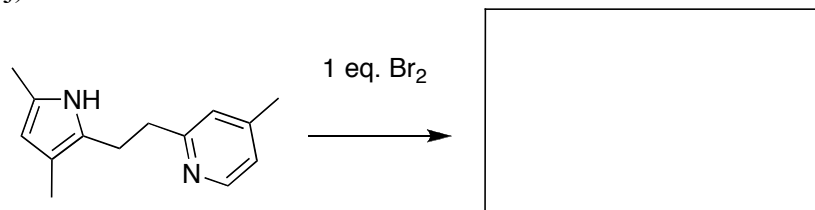
h)



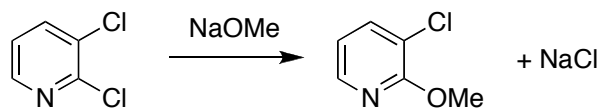
i)



j)

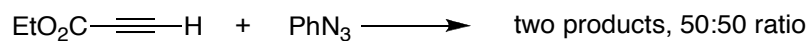


2. Explain the regioselectivity of the reaction below using text and diagrams.

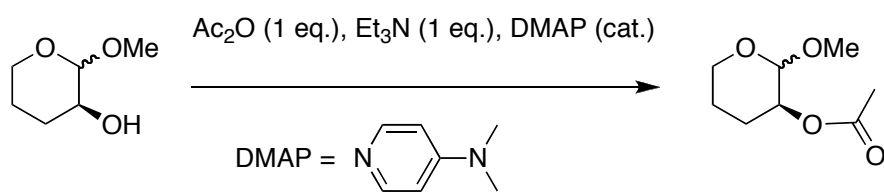


3. a) Give the Lewis structure of phenyl azide (PhN_3), showing all lone pairs, bonds orders, and charges.

b) Give the products and detailed mechanism for the following transformations. Be precise about arrows and charges.



4. Give a detailed mechanism for the following transformation, and explain why the reaction is faster in the presence of DMAP.



Pyridine is a much poorer catalyst for this reaction. Why is the dimethylamino group on DMAP important?