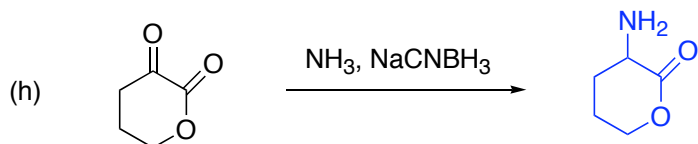
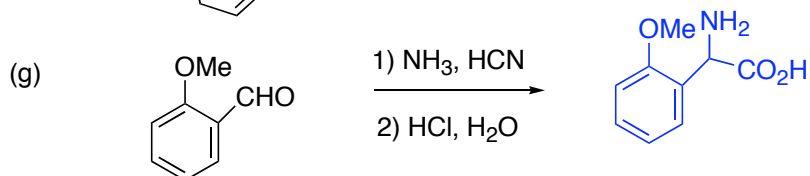
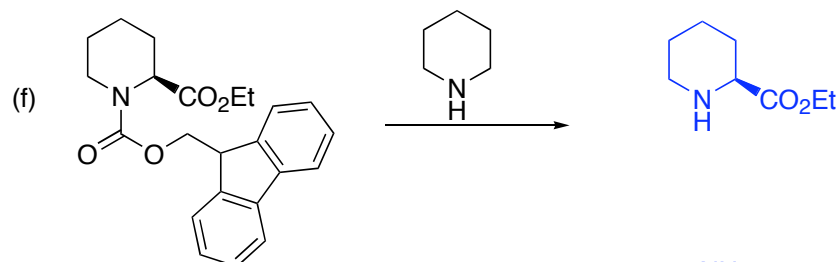
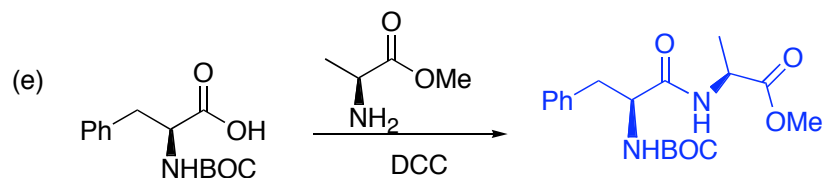
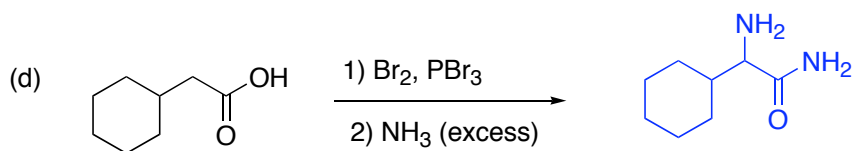
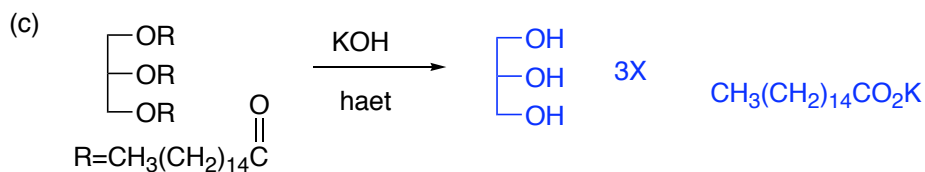
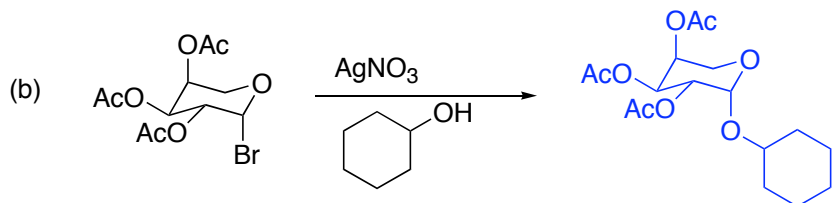
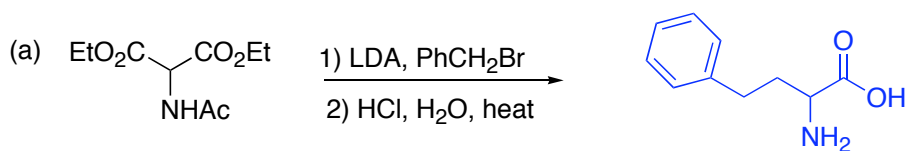
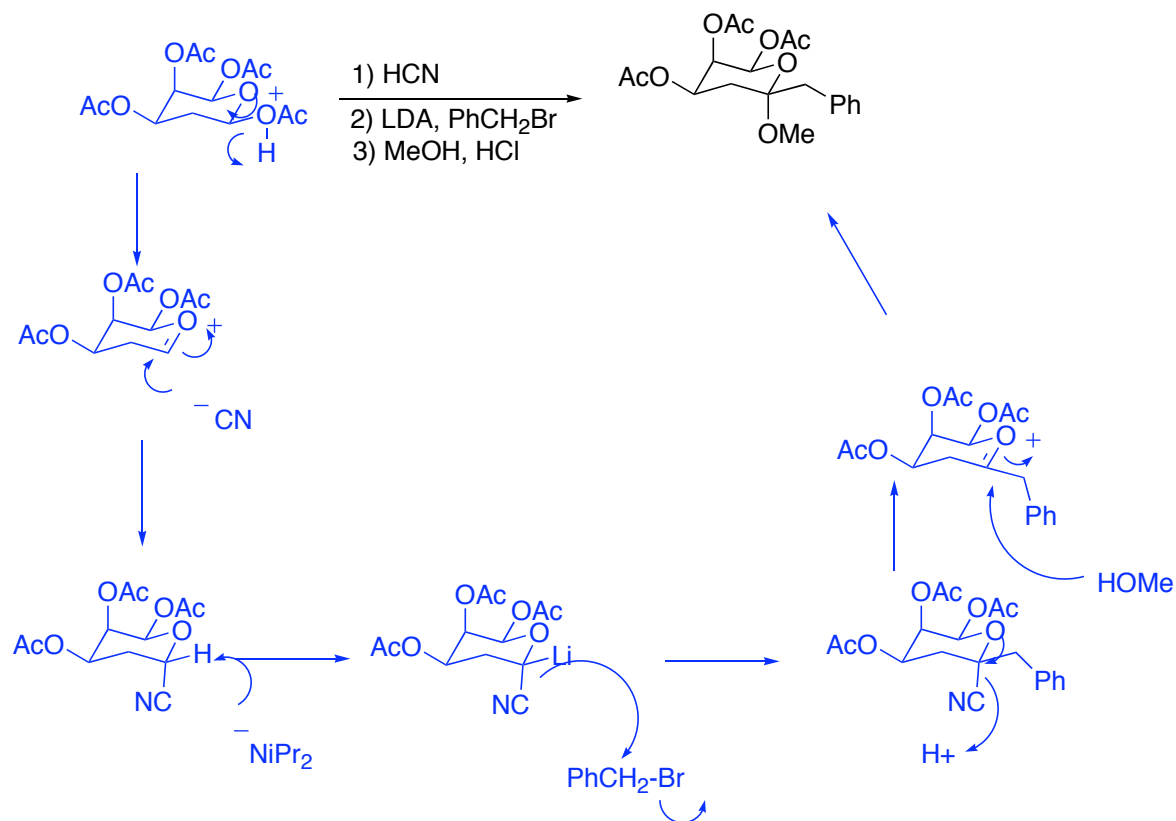


(1) Predict the major product from each reaction. If you expect no reaction, indicate.

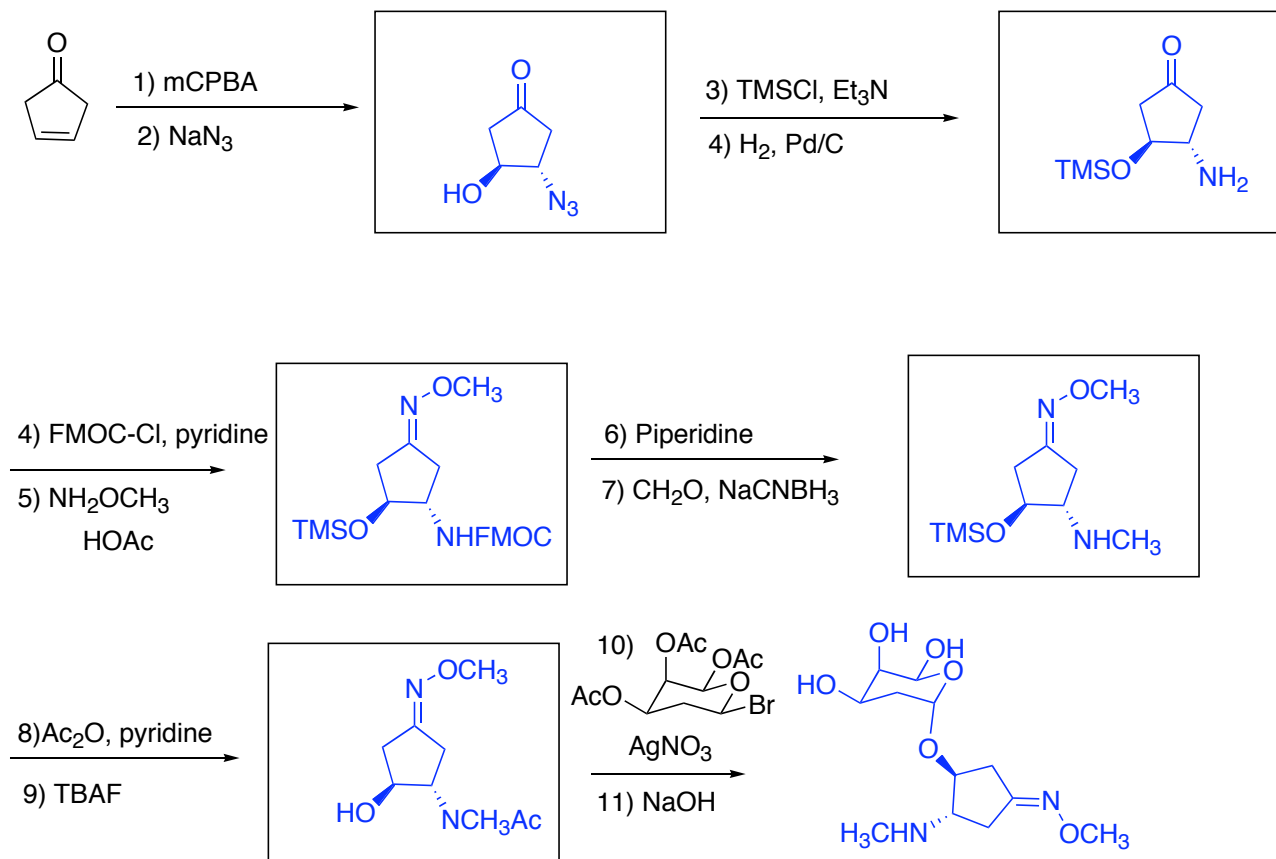
note: aqueous work-up is implied for all reactions.



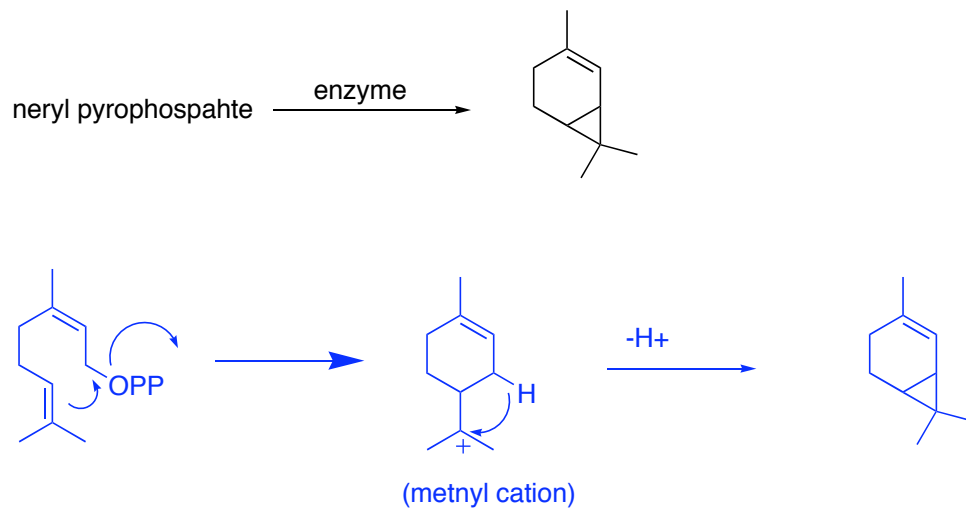
(2) Give a detailed mechanism for the following reaction, show all steps.



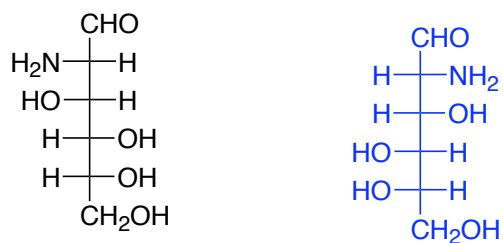
(3) Complete the following roadmap problem.



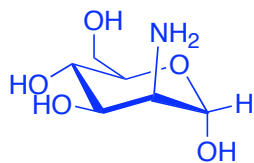
(4) Propose a mechanism for the following enzymatic transformation



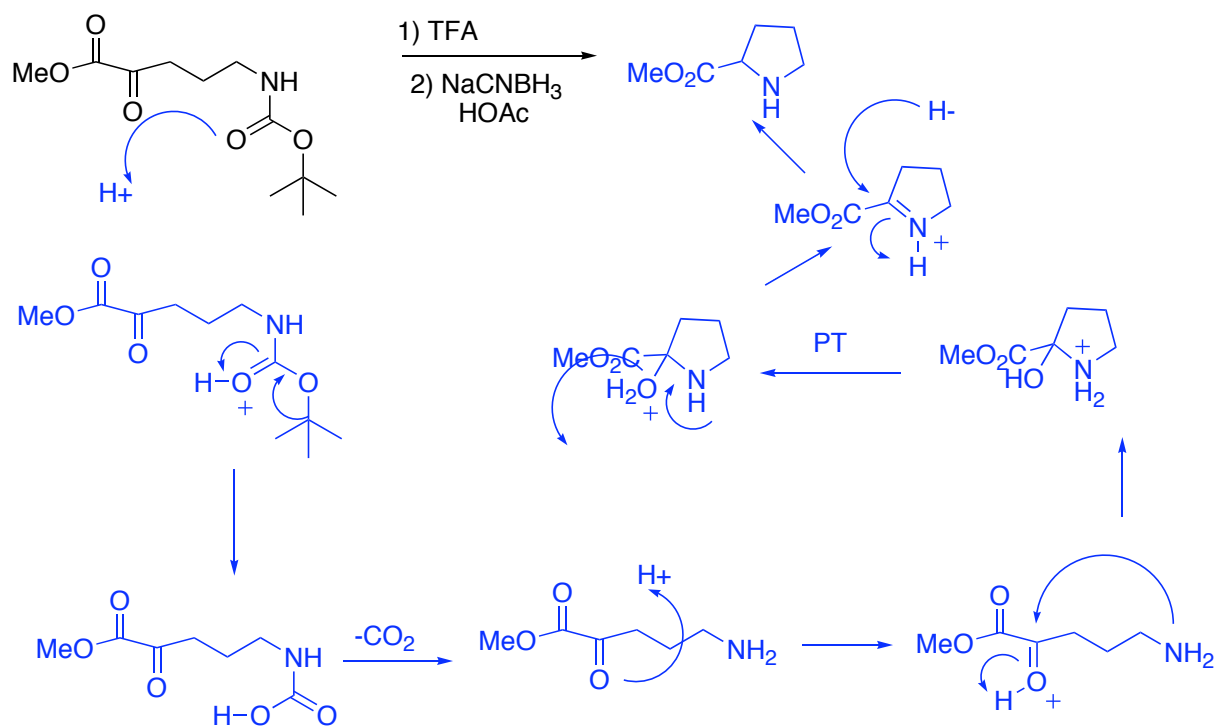
(5) For the following aminosugar, draw the enantiomer



(6) Draw this compound in the chair form.



(7) Give the product and a mechanism for the following reaction.



(8) Using benzene and any other organic reagents with less than six-carbons, design a synthesis of the following unnatural amino acid.

