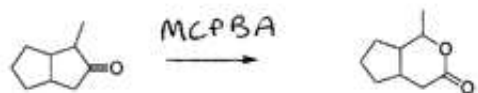


Question # 1

10 pts total

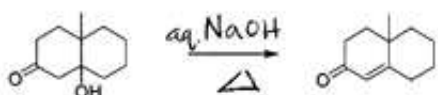
For each of the reactions below provide the reagent(s) required to form the indicated product:

a)

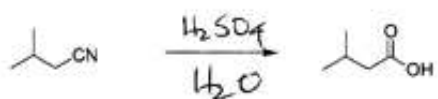


(or any other peroxy acid)

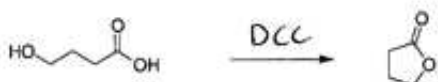
b)

(or NaOMe, MeOH, Δ)

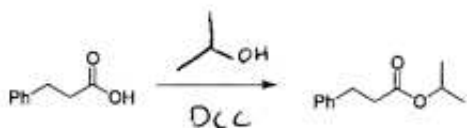
c)



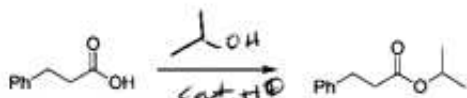
d)

(or cat. H_2SO_4 , Δ)

e)



f)

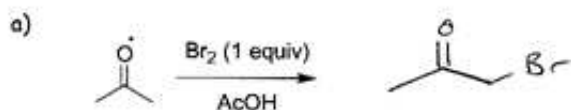


DO THIS A DIFFERENT WAY FROM PART (E)

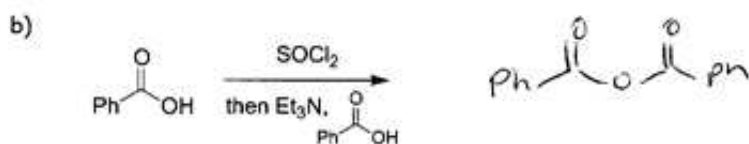
Question # 2

30 pts total

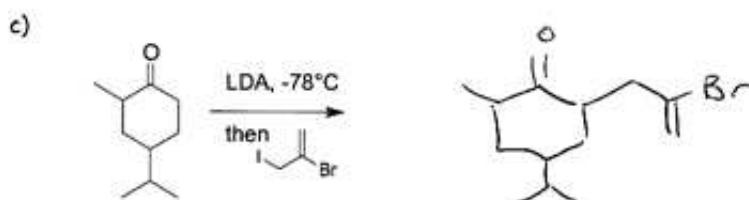
Draw the major product of the following reactions/reaction sequences. For parts (d), (f), and (g) you should indicate the stereochemistry of the product.



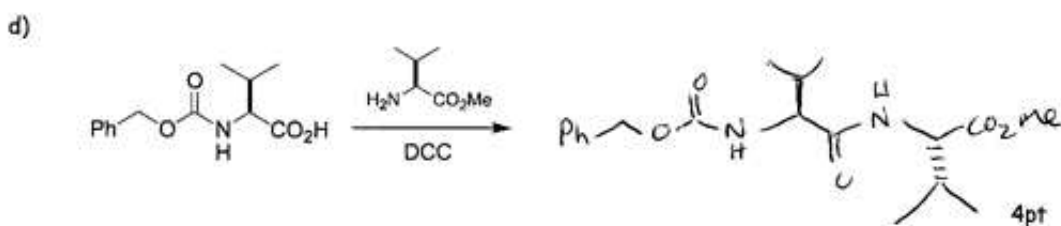
3 pt



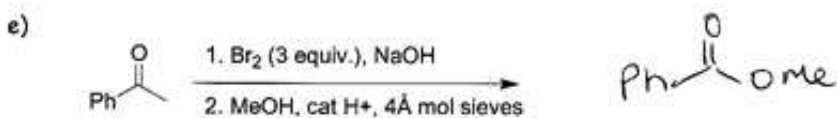
3 pt



3 pt

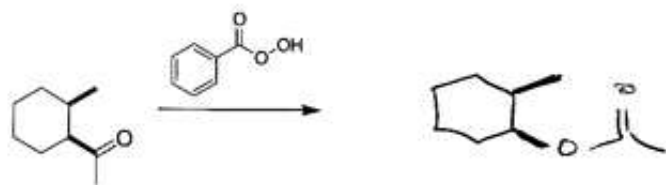


4pt



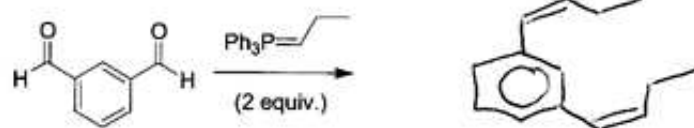
3pt

f)



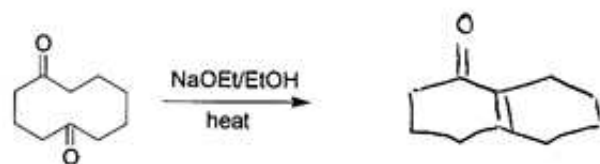
4pt

g)



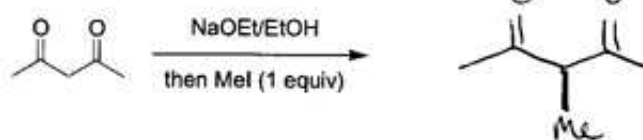
4pt

h)



3pt

i)



3pt

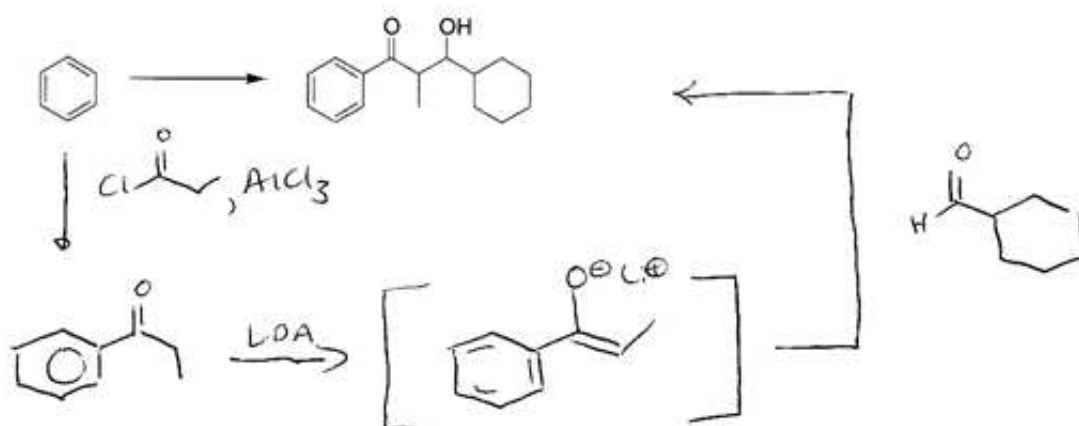
Question # 3

30 pts total

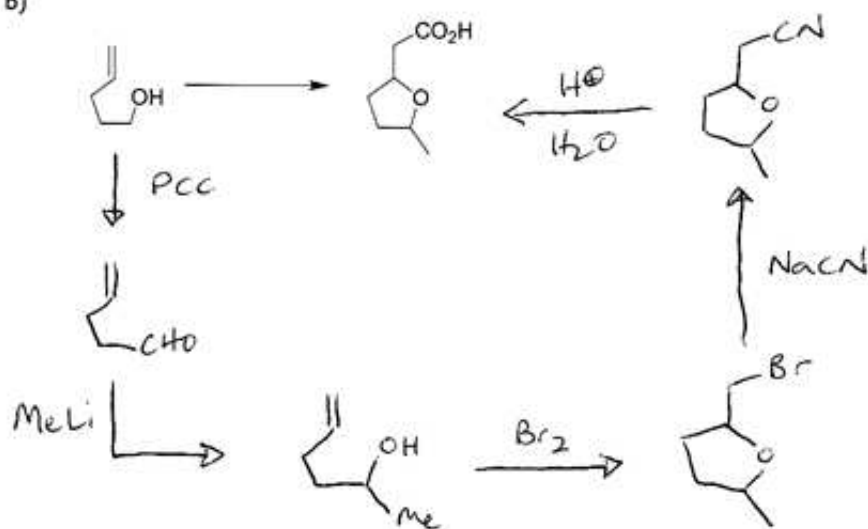
Do any three of the four following options. YOU MUST CROSS OUT THE ONE YOU DO NOT WANT GRADED. If you answer all four without crossing one out we will not count the highest score!

How would you synthesize the following molecules from the starting materials shown using any inorganic reagents you chose plus organic compounds of less than 8 carbons? Be sure to show the products of each step if your synthesis requires more than one step.

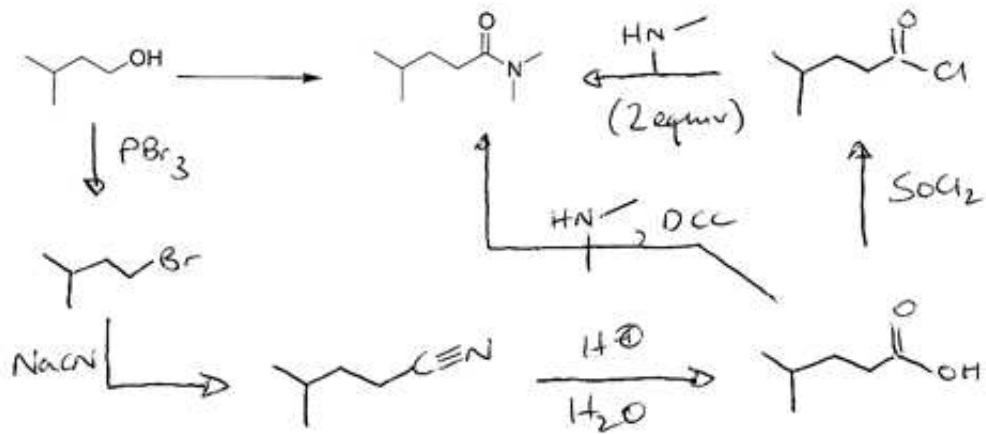
a)



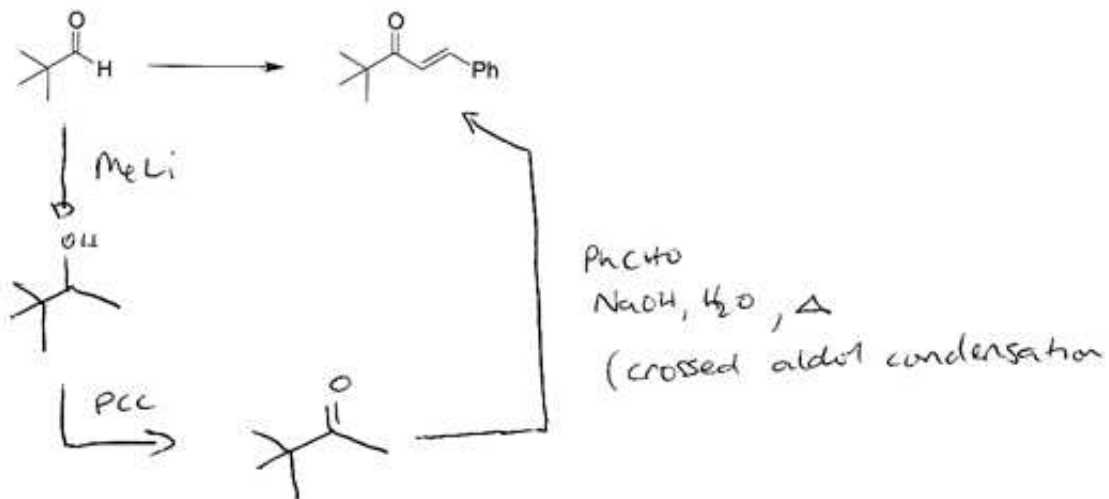
b)



c)



d)

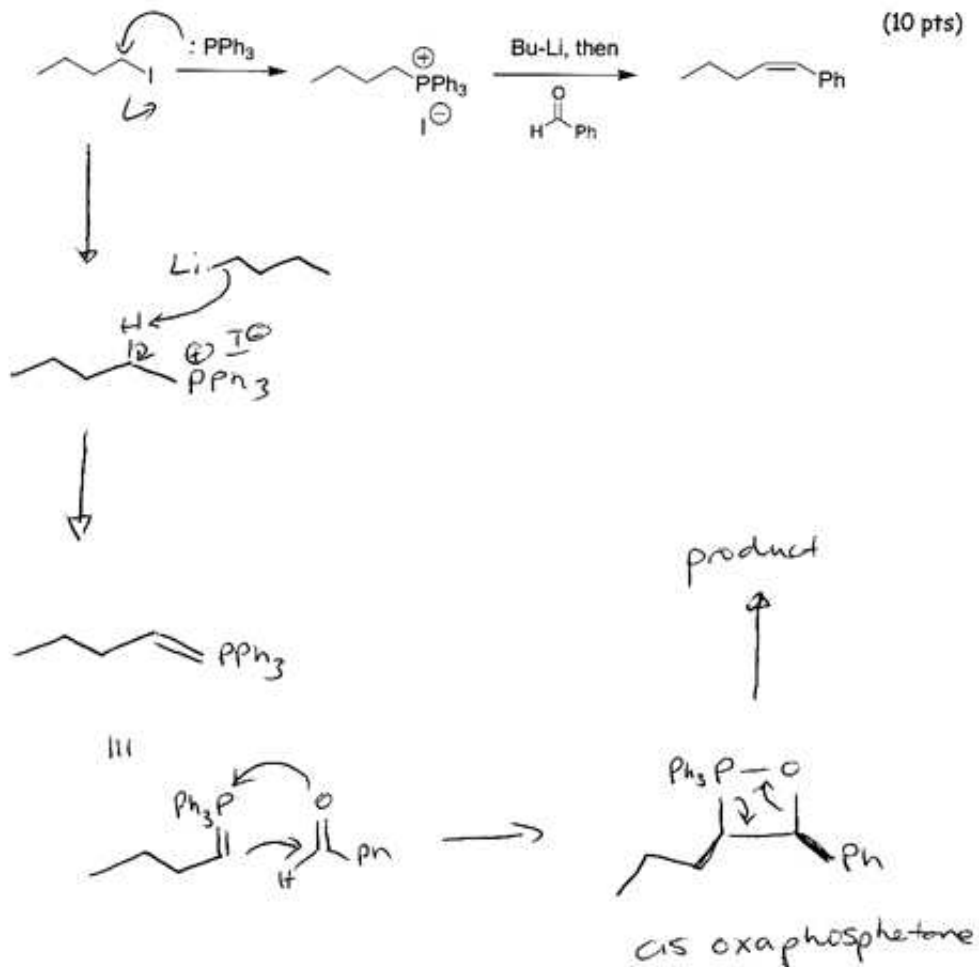


Question # 4

30 pts total

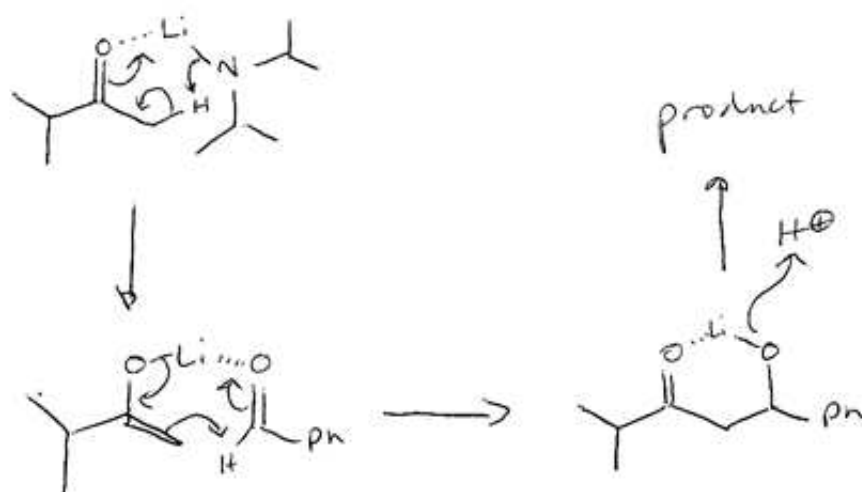
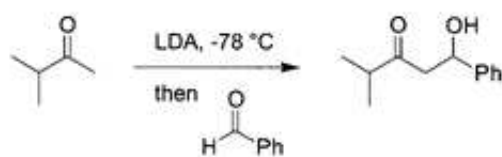
Write mechanisms for the following three reactions/reaction sequences. Be sure to show all the intermediates and all the arrows required for each step [including aqueous workup if it is required].

a) (10 pts)



b) Make sure you show the mechanism for the deprotonation!

(10 pts)



c)

(10 pts)

