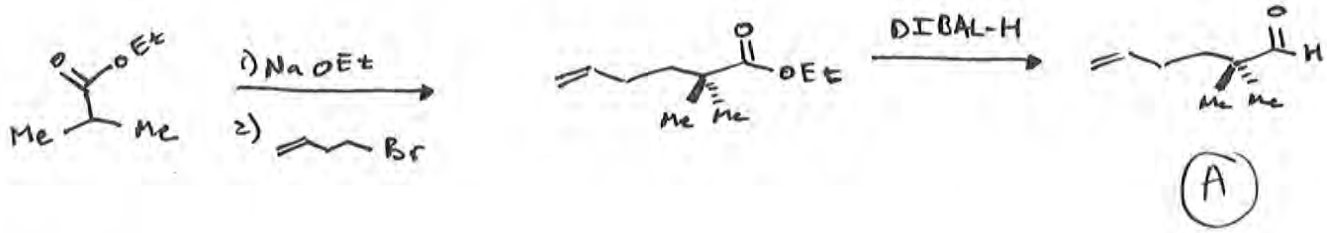
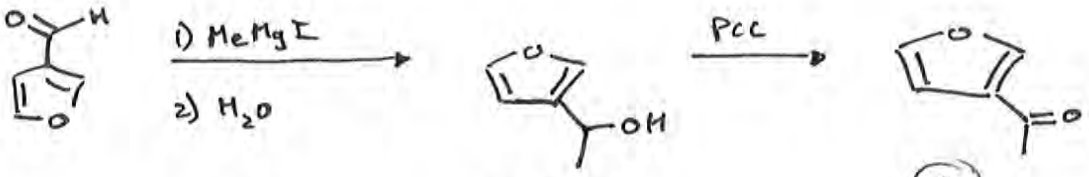
Worksheet 6 ~~WORKSHEET---7~~

1.



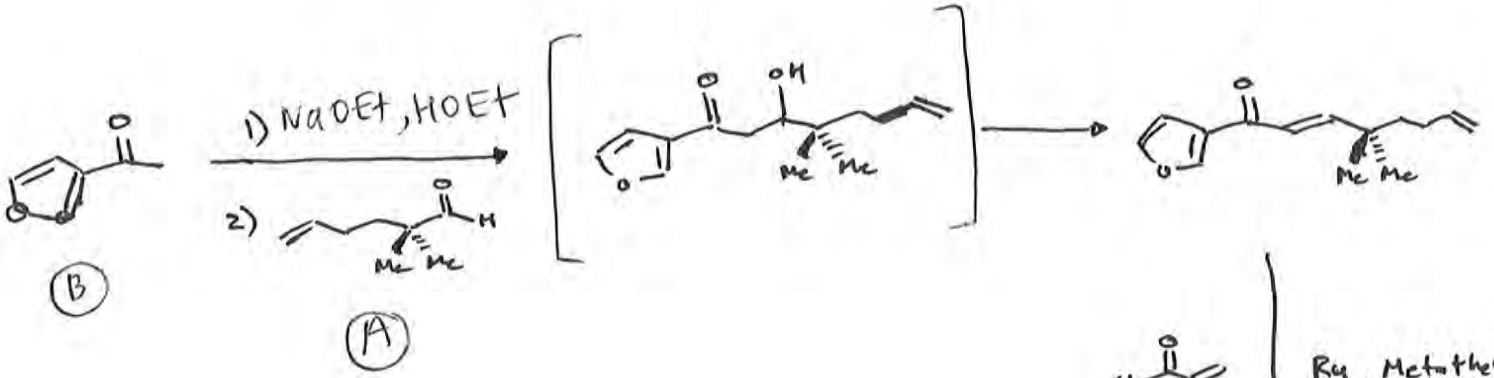
(A)



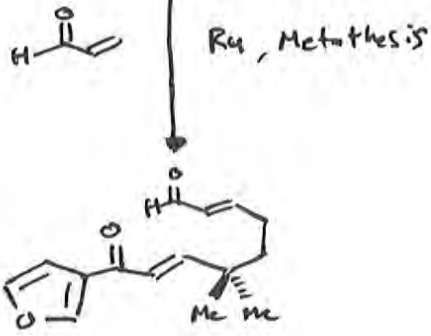
racemic

(B)

$Me-I \xrightarrow{Mg^0} Me-MgI$



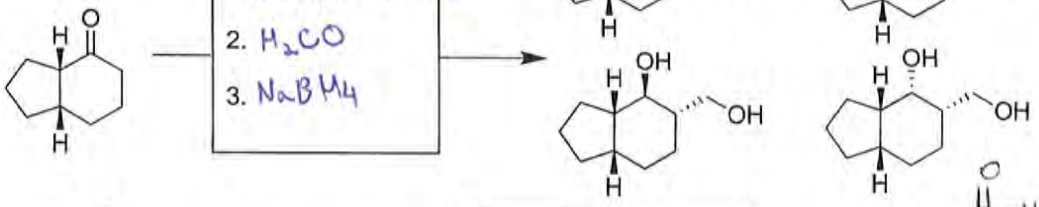
(B) (A)



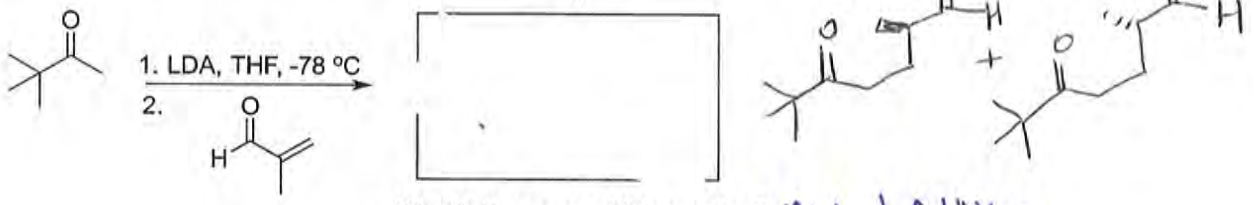
Note: you don't need to know the Ru metathesis step, we just put it in for people who might be curious.

2. Fill in the boxes with the appropriate starting material, reagent or major product.
Show stereochemistry where appropriate

a.

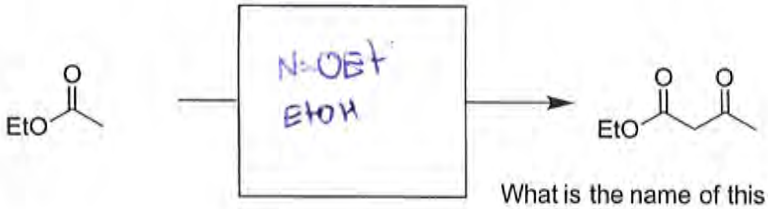


b.



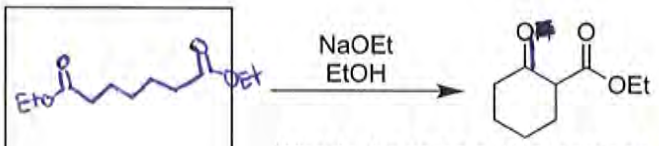
What is the name of this reaction? Michael Addition

c.



What is the name of this reaction? Claisen Reaction

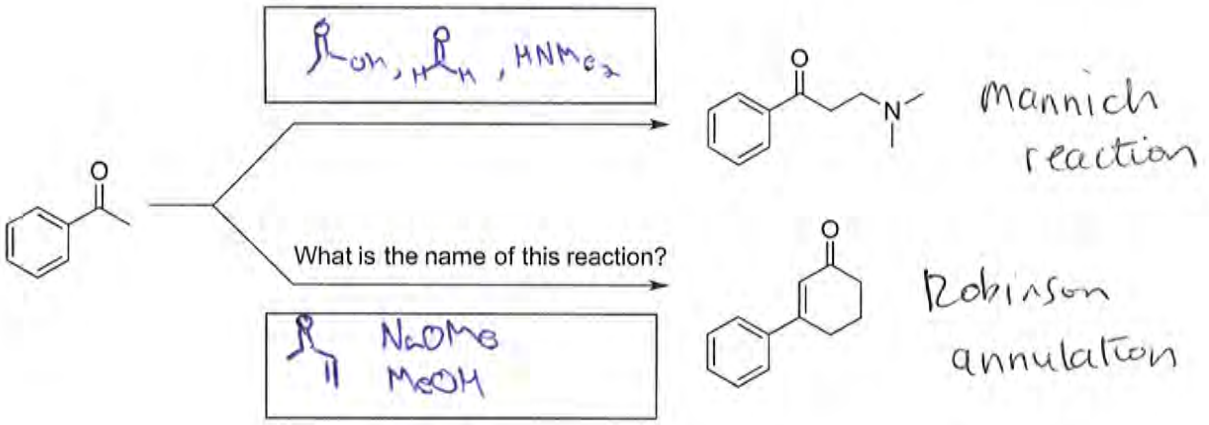
d.



What is the name of this reaction? Dieckmann Condensation

e.

What is the name of this reaction?



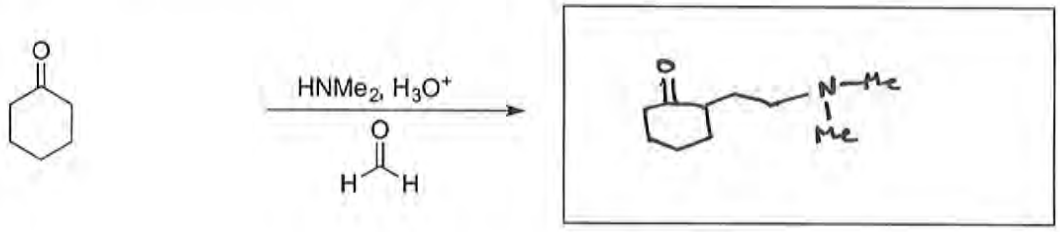
Mannich reaction

What is the name of this reaction?

Robinson annulation

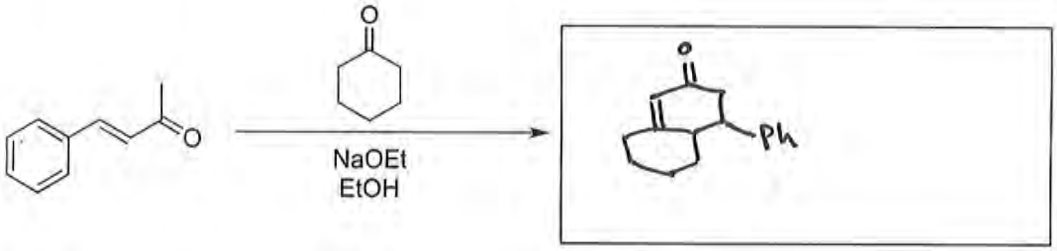
3. Fill in the blank and provide an arrow-pushing mechanism.

a.



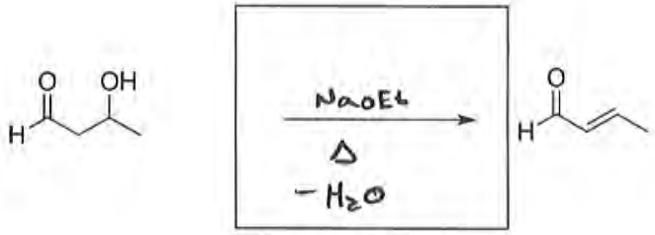
Mannich reaction

b.



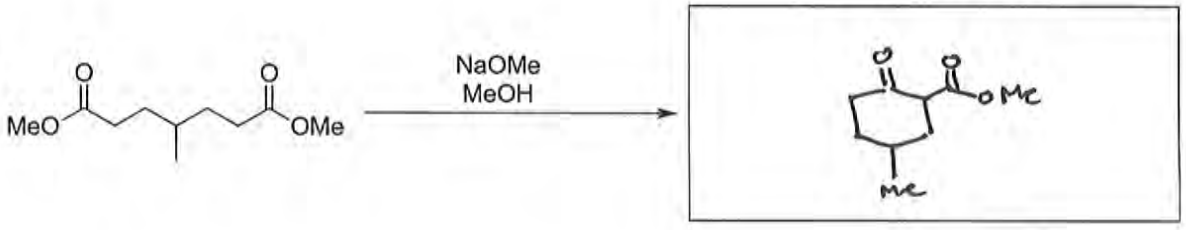
Robinson annulation

c.



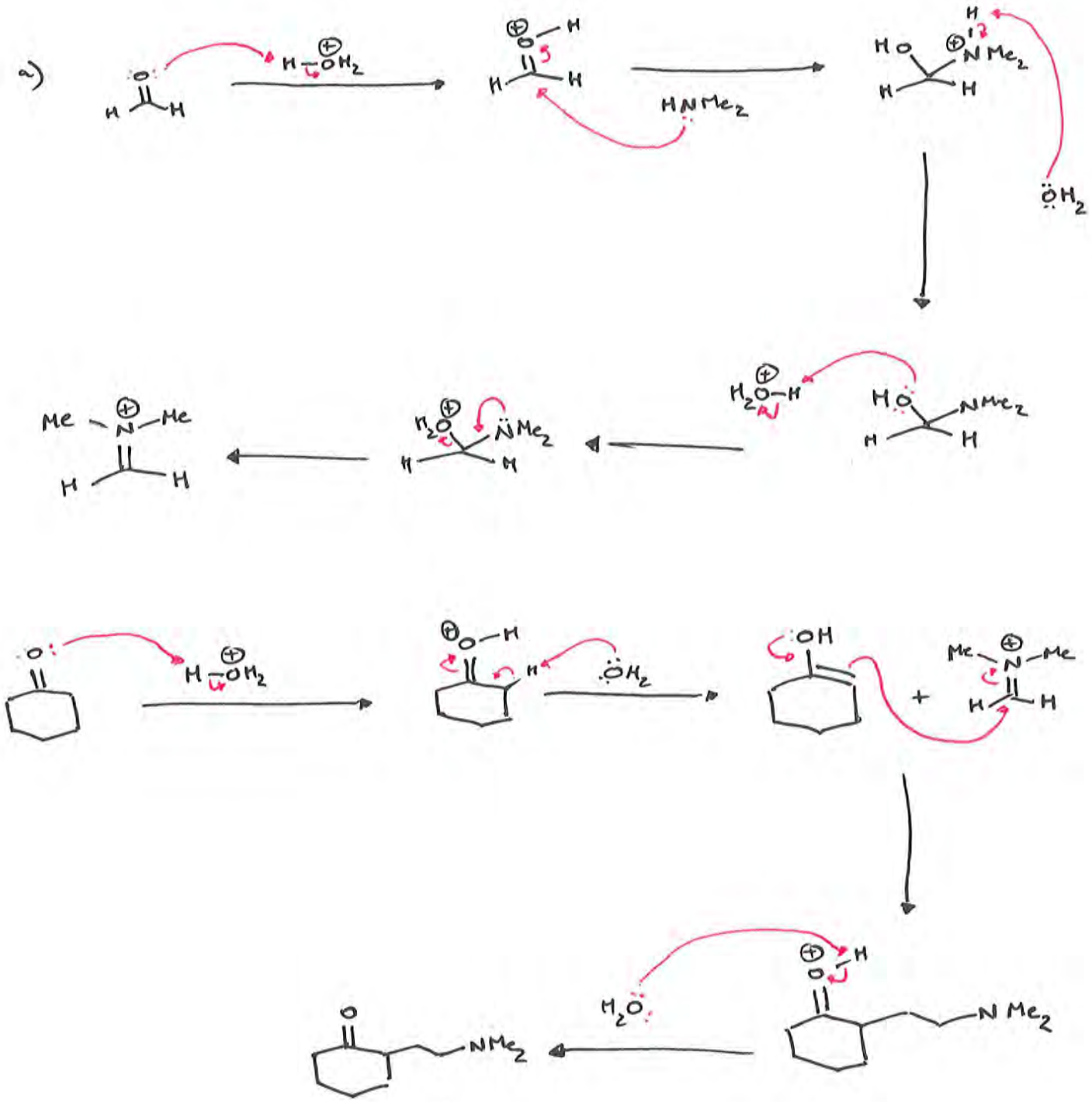
E1cb

d.

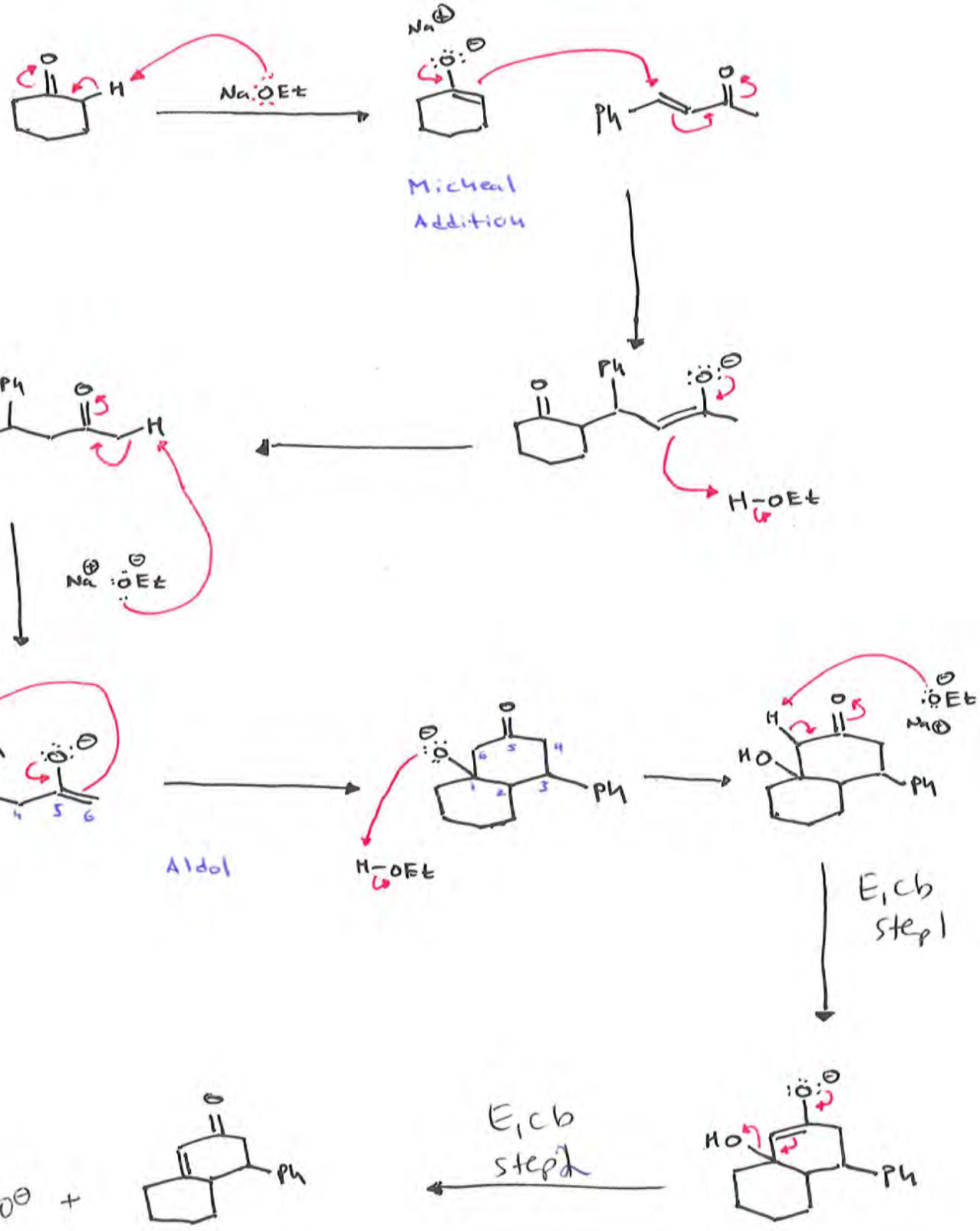


Dieckmann reaction

3. a)

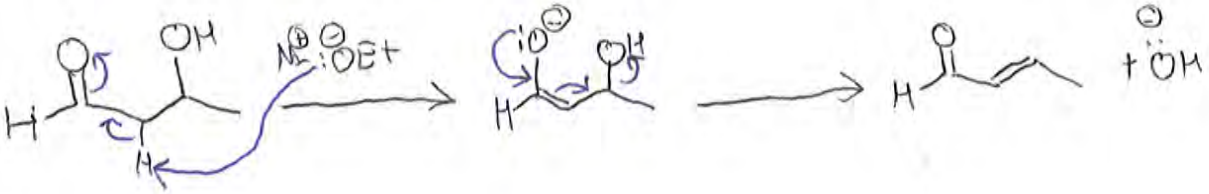


3. b)

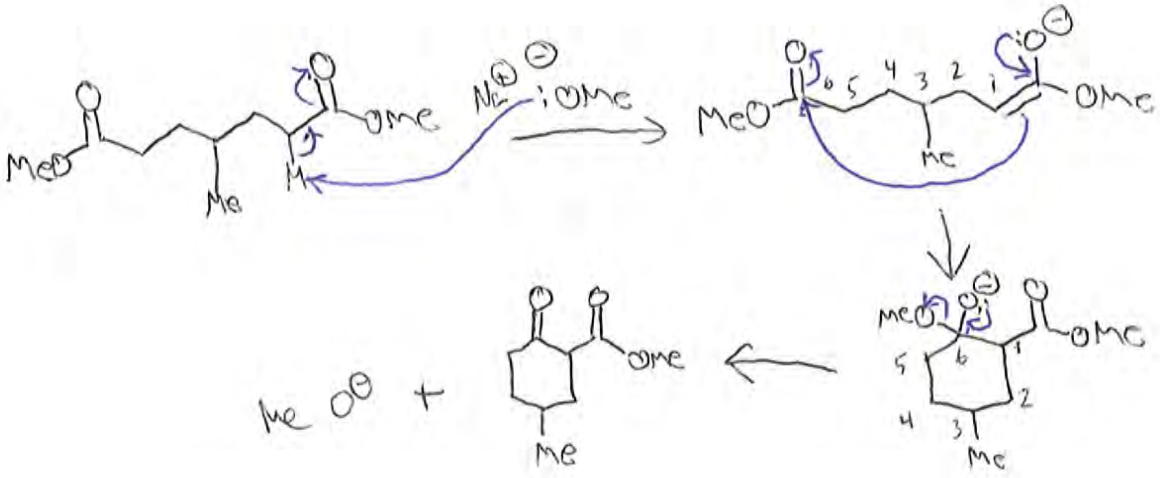


Micheal addition Followed by an aldol condensation is a Robinson anulation.

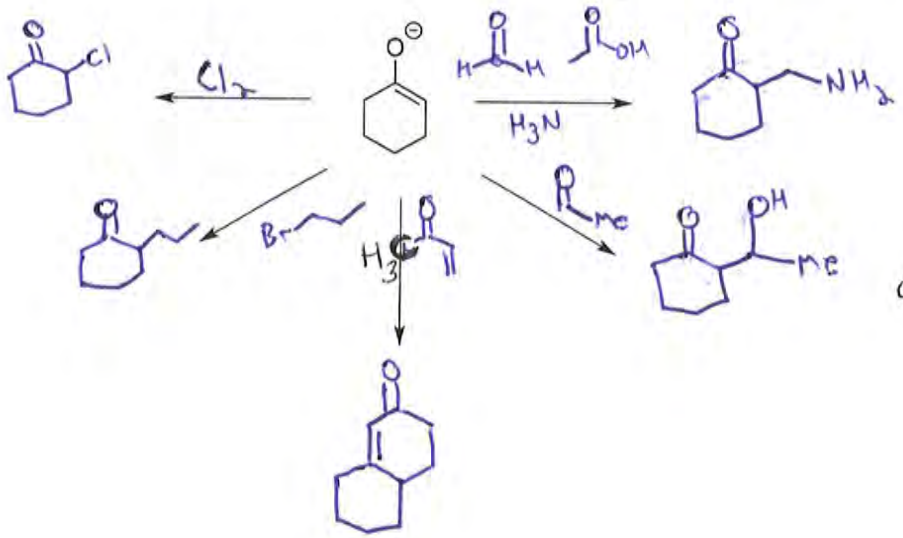
(3c)



(3d)

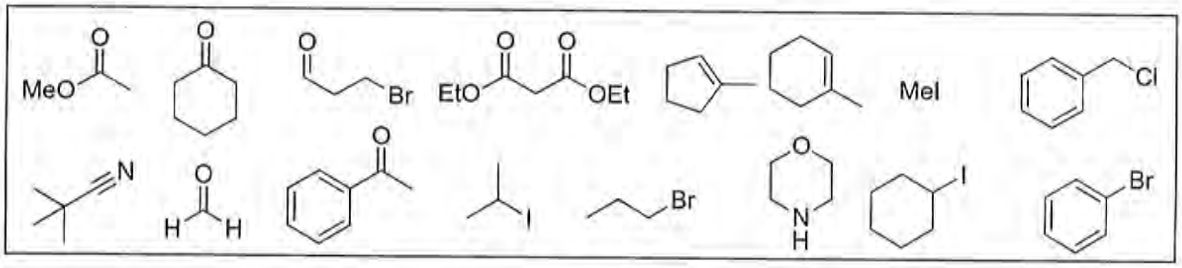


4. Draw five different reactions of the enolate shown below, each leading to different products.

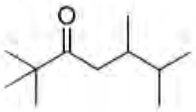


Robison annulation

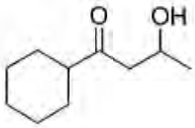
5. Propose syntheses of the targets shown below.
All carbons in the product must come from the starting materials provided, you can use any reagent you wish.



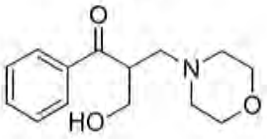
Target A.



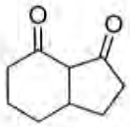
Target B.



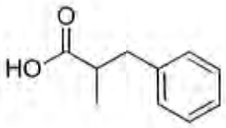
Target C.



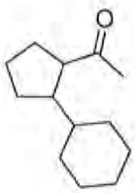
Target D.



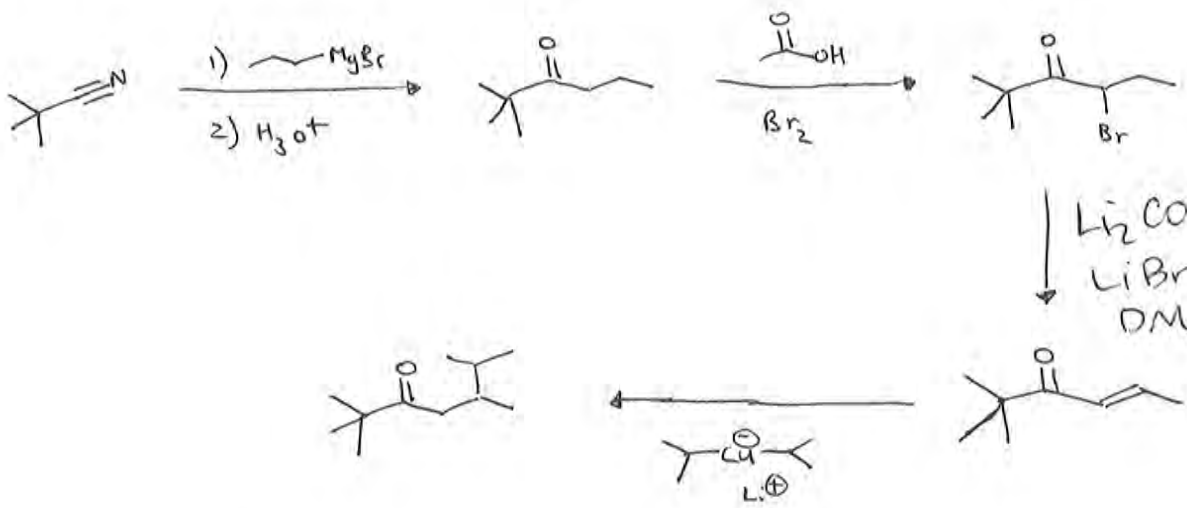
Target E.

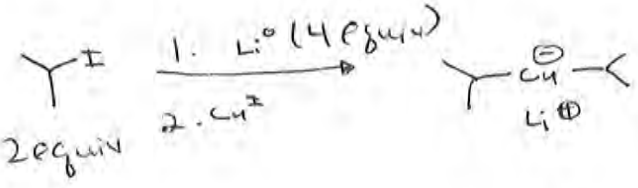


Target F.

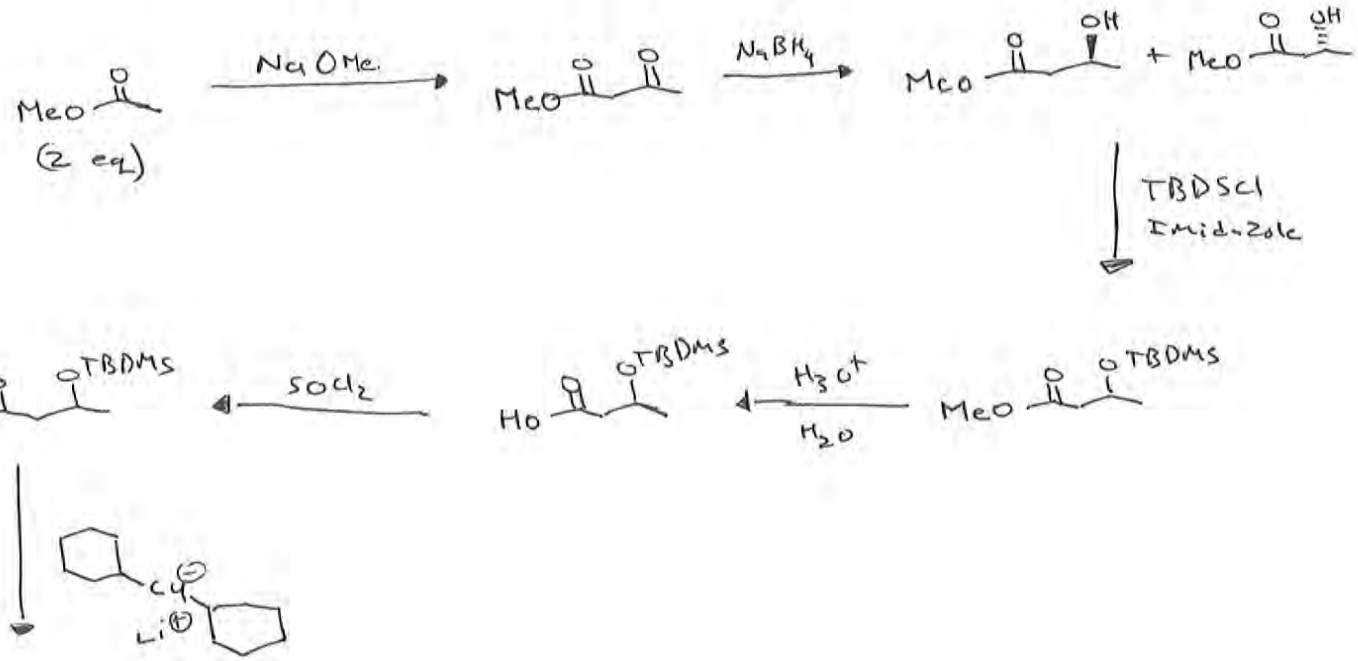


5. a)

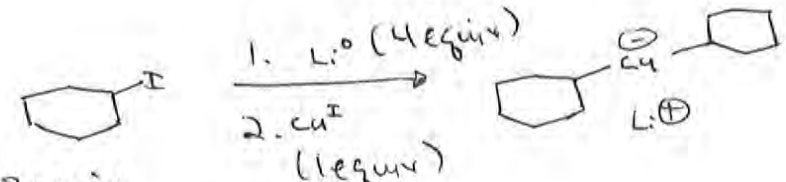

1) MgBr
2) H3O+
Br2
Br
Li2CO3
LiBr
DMF
Li⊕


1. Li° (4 equiv)
2. CuI
2 equiv
Li⊕

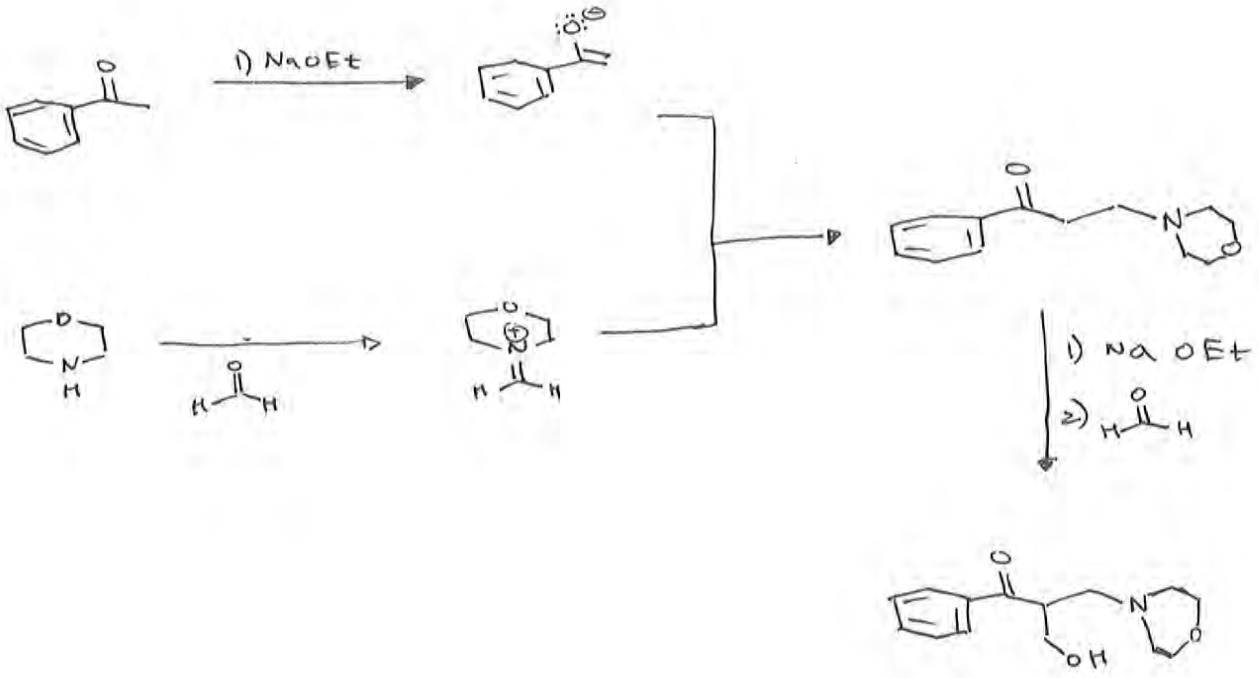
5. b)


MeO
(2 eq)
NaOMe
NaBH4
TBDSCl
Imidazole
TBDMS
SOCl2
H3O+
H2O
HO
Cl
Li⊕

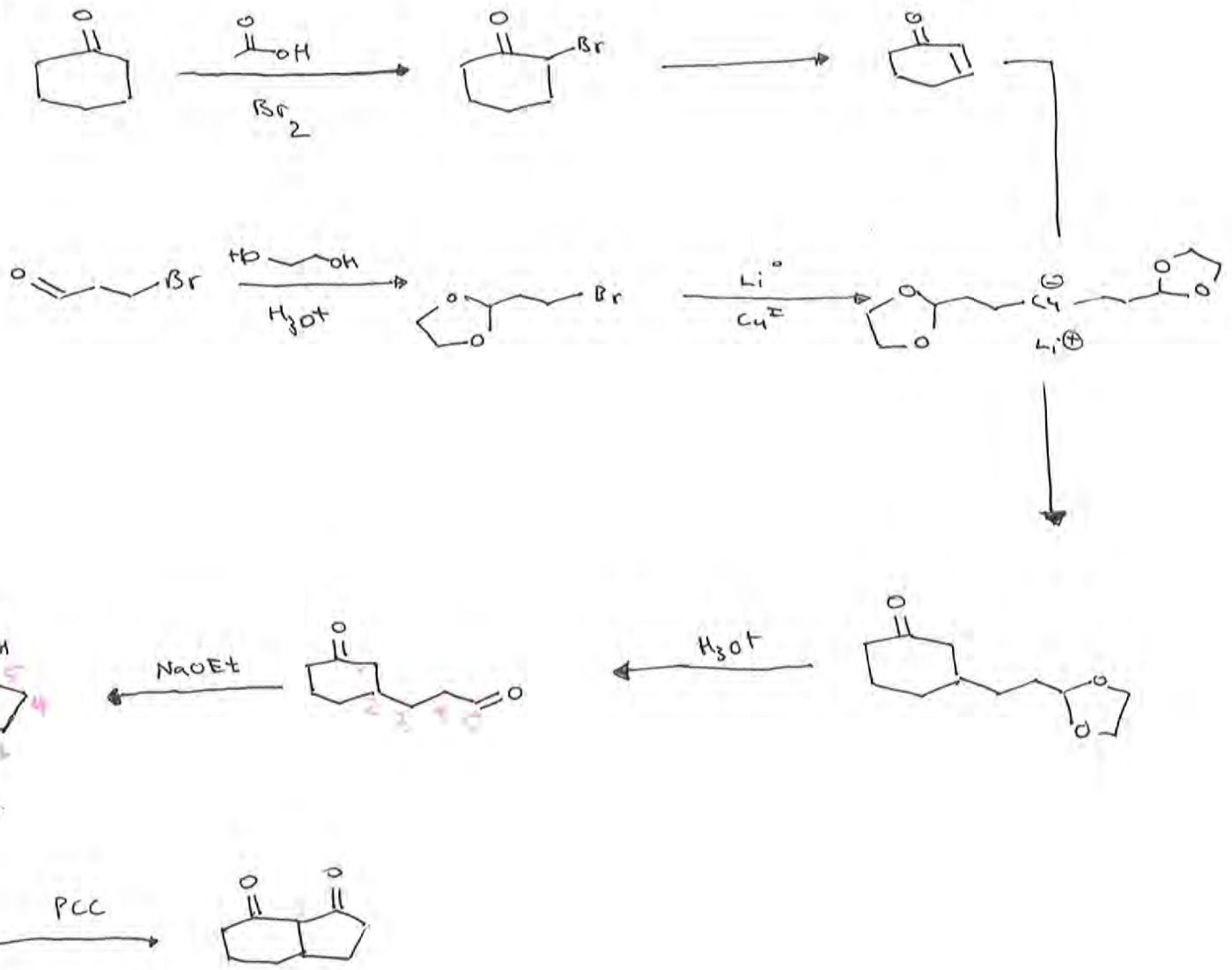

TBDMS
TBAF


1. Li° (4 equiv)
2. CuI
(1 equiv)
2 equiv
Li⊕

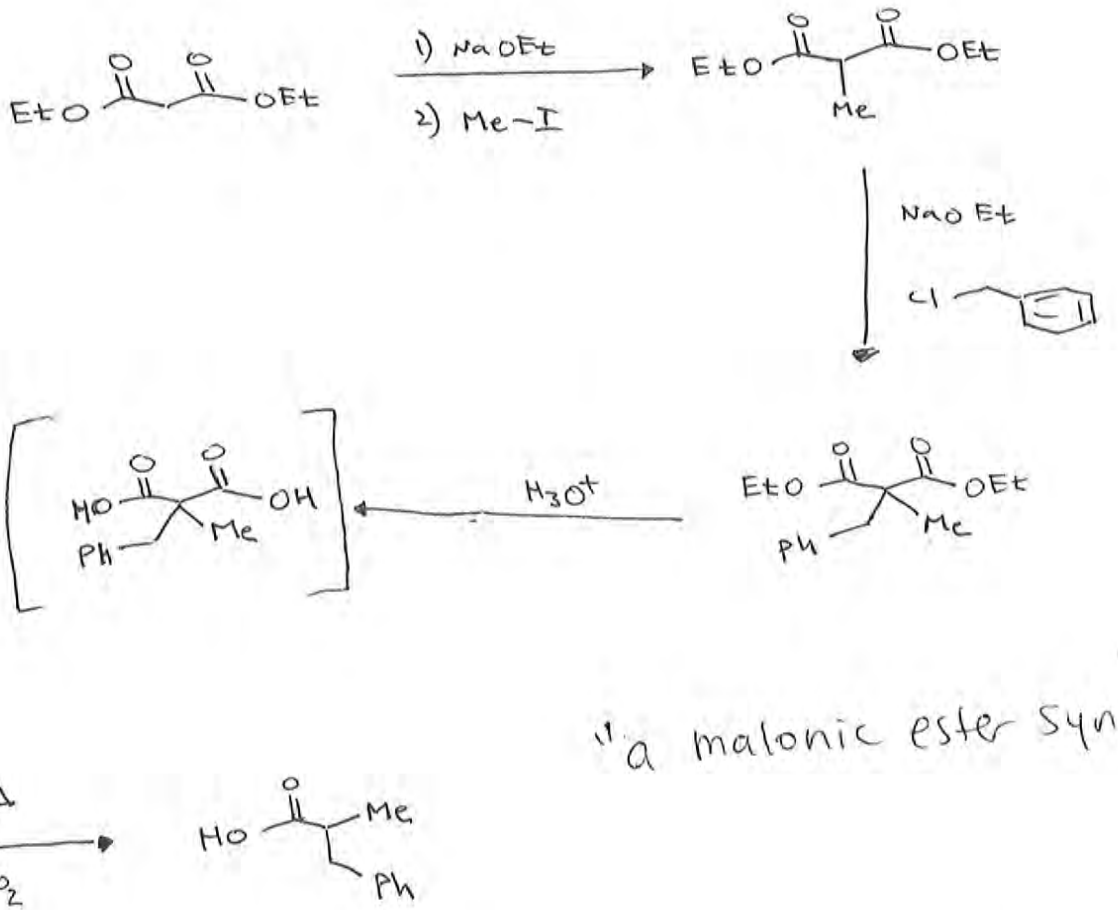
5. c)



5. d)



5. e)



"a malonic ester synthesis"

5. f)