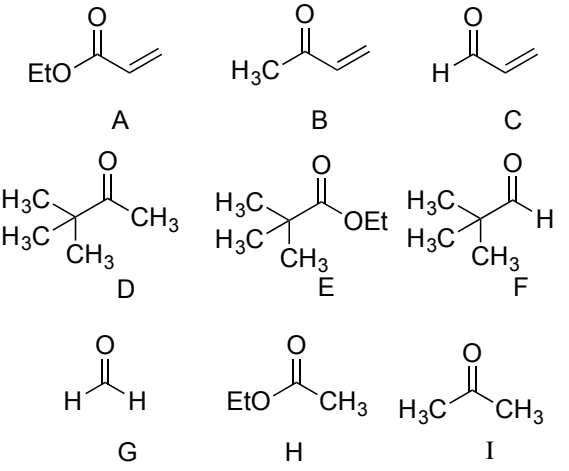
**Midterm 2, Chem 51C, Jarvo, Fall 16** Initials: _____

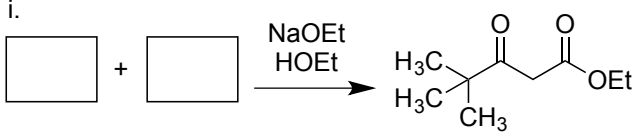
1 (22 points)

a. Which starting materials would you combine in the presence of NaOEt and HOEt to complete the syntheses?

**Starting materials**

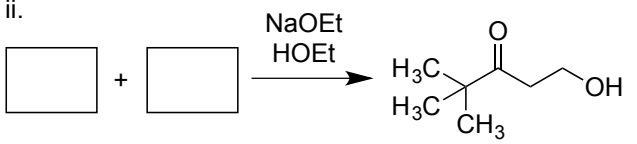



i.



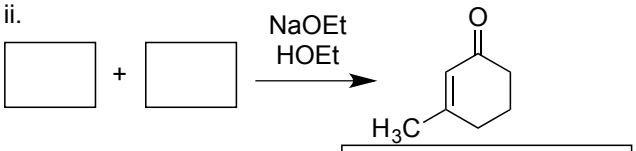

Name of reaction: _____

ii.



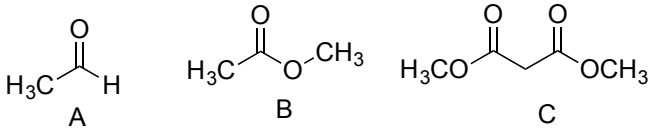

Name of reaction: _____

ii.



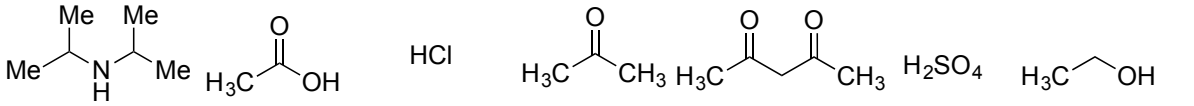

Name of reaction: _____

b. Rank the following compounds from **most to least** acidic.




_____ > _____ > _____

c. Provide pKa's for **any 6** of the following compounds (if you do them all, we will count your best 6).

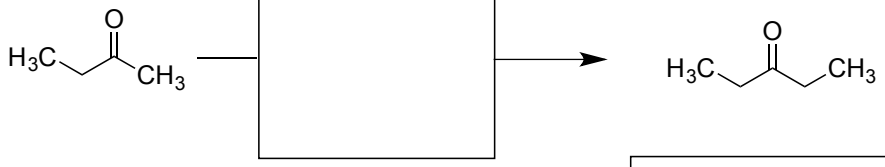



_____ _____ _____ _____ _____ _____ _____

2. Fill in the boxes with the appropriate starting material, reagent or major product (21 points).
Show stereochemistry where appropriate (you must DRAW the enantiomers/diastereomers)

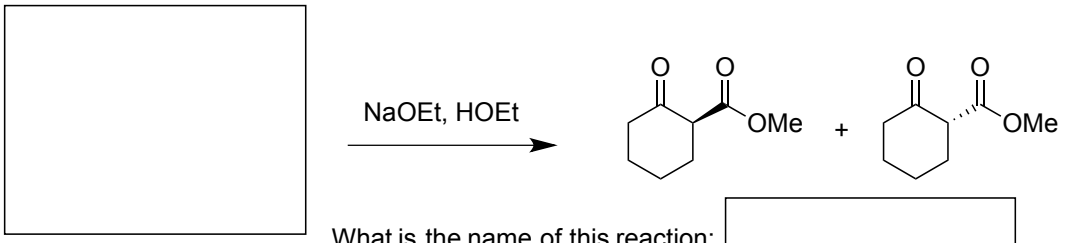
Initials: _____

a.




Did this reaction proceed through the kinetic or thermodynamic enolate?

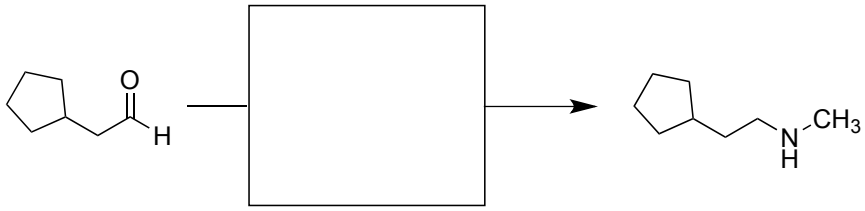
b.




What is the name of this reaction:

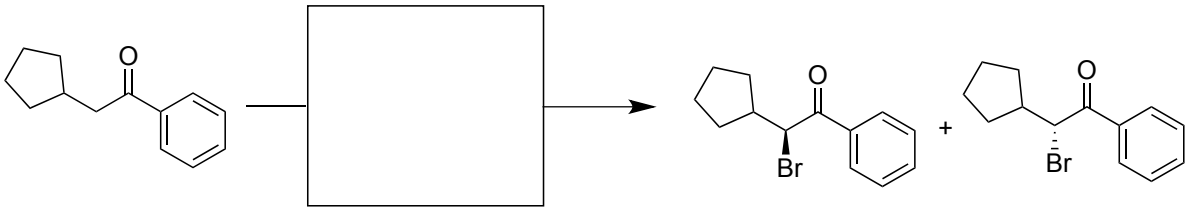
c.


d.




What is the name of this reaction:

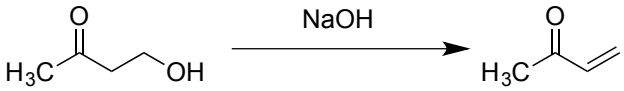
e.



3. (10 points) Provide an arrow-pushing mechanism.

Initials: _____

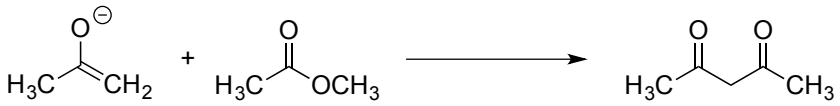
a.




What is the name of this mechanism?

**Mechanism:**

b.

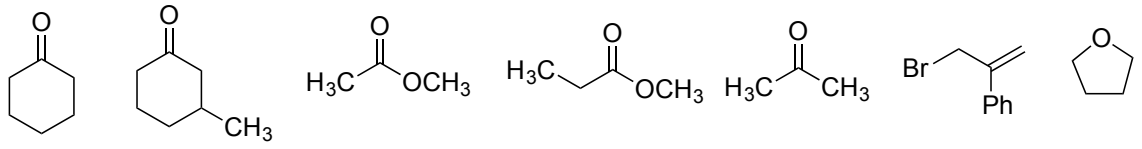



**Mechanism:**

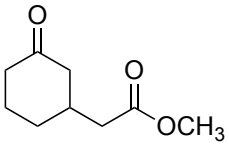
Initials: _____

4. (12 points) Propose syntheses of the targets below.
**All carbons** must come from the starting materials provided, you can use any reagent you wish.
**YOU CAN IGNORE STEREOCHEMISTRY.**

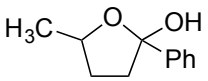
**Starting Materials:**




**Target A.**



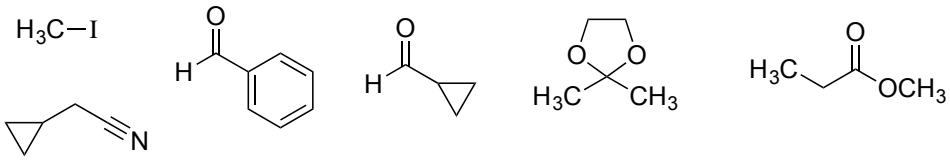

**Target B.**



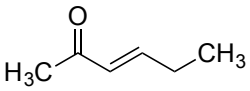
Initials: _____

5. (16 points) Propose syntheses of the targets below (10 points).
**All carbons** must come from the starting materials provided, you can use any reagent you wish.
**YOU CAN IGNORE STEREOCHEMISTRY.**

**Starting Materials:**




**Target A.**




**Target B.**