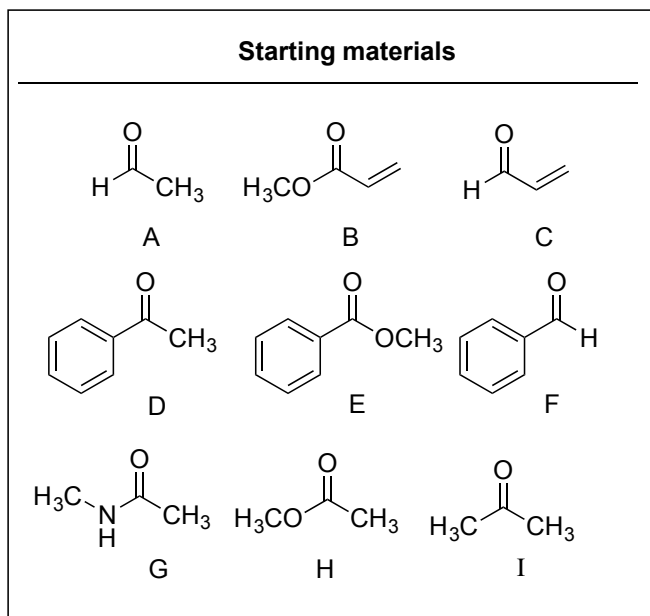
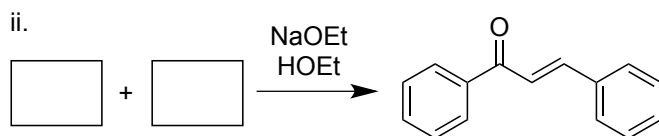
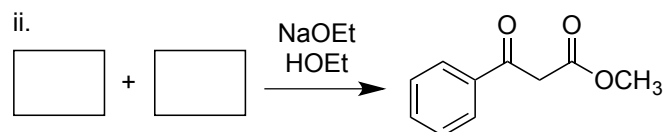
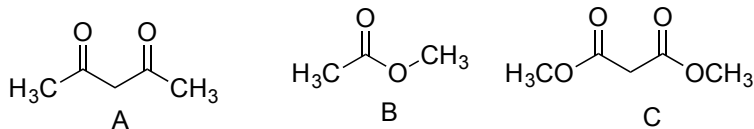
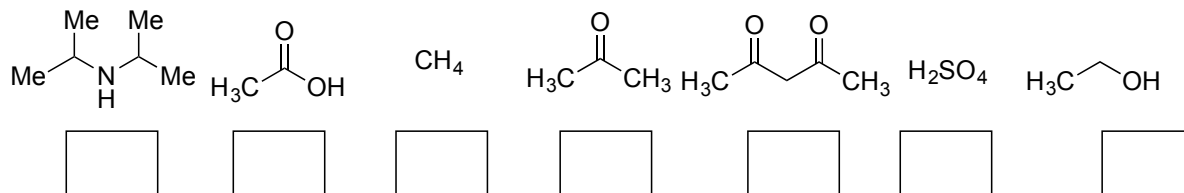
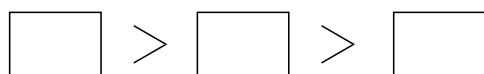
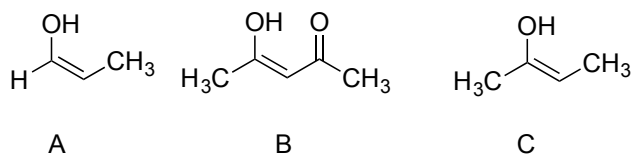


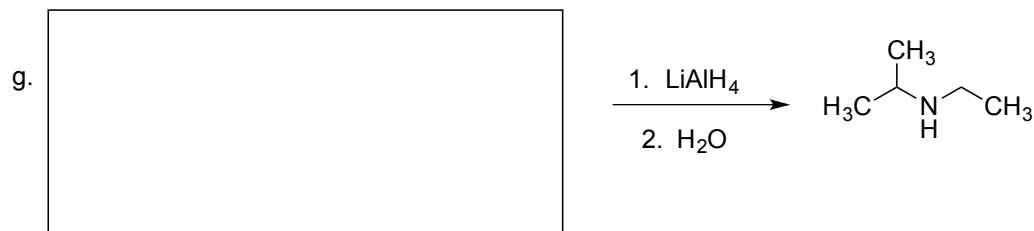
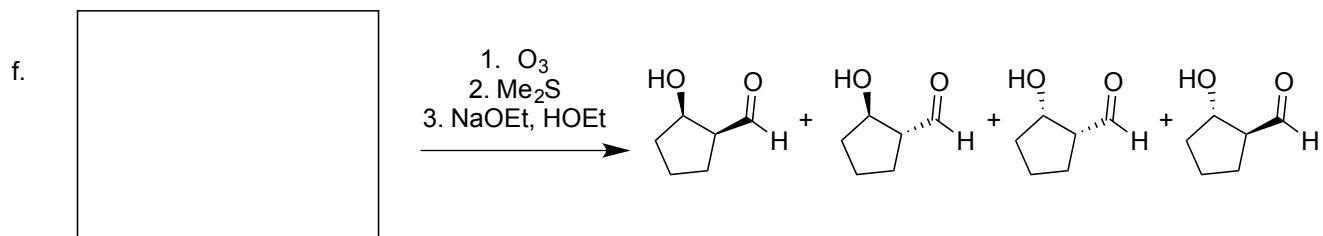
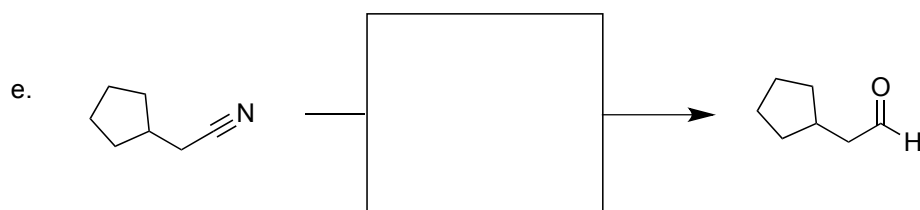
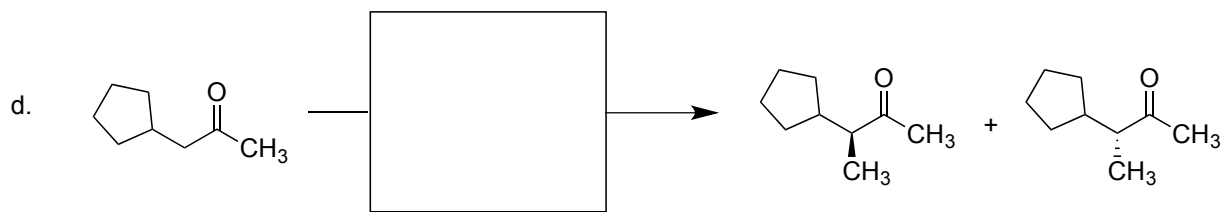
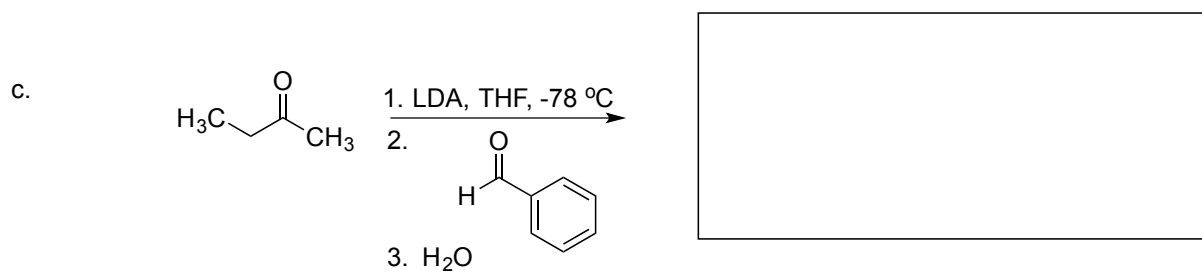
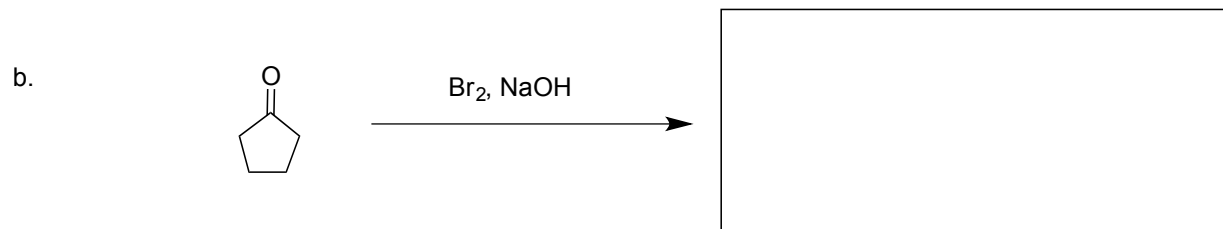
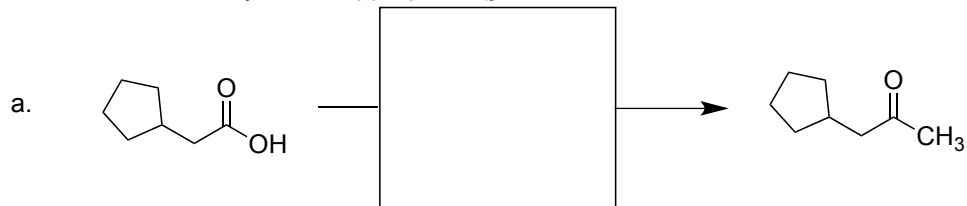
1 (23 points)

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

Name of reaction: Name of reaction: 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).d. Rank the following enols from **most to least** stable:

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)

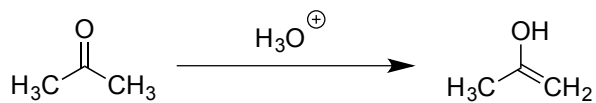
Initials: _____



3. (15 points) Provide an arrow-pushing mechanism.

Initials: _____

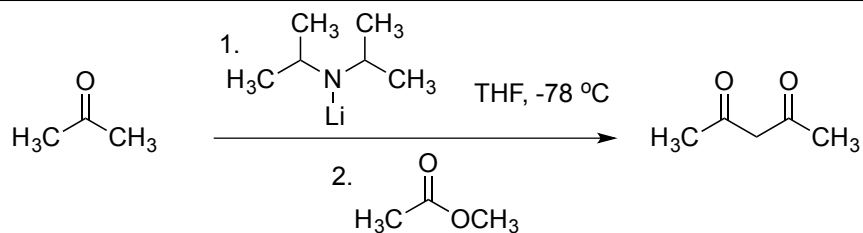
a.



What is the relationship between the starting material and product?

Mechanism:

b.



Mechanism:

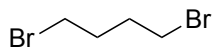
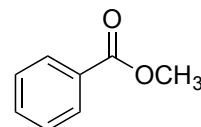
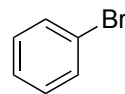
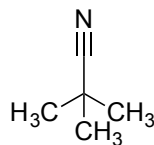
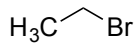
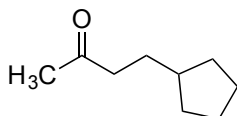
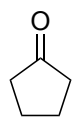
Initials: _____

4. (14 points) Propose syntheses of the targets below.

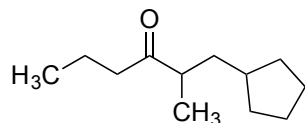
All carbons must come from the starting materials provided, you can use any reagent you wish.

YOU CAN IGNORE STEREOCHEMISTRY.

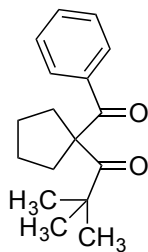
Starting Materials:



Target A.



Target B.

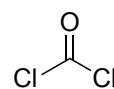
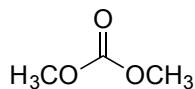
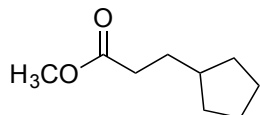
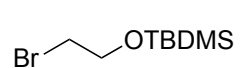
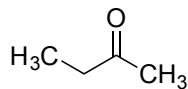
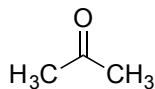
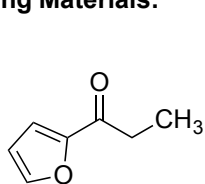


5. (16 points) Propose syntheses of the targets below (10 points).

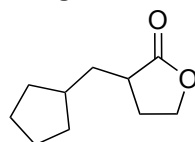
Initials: _____

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.

