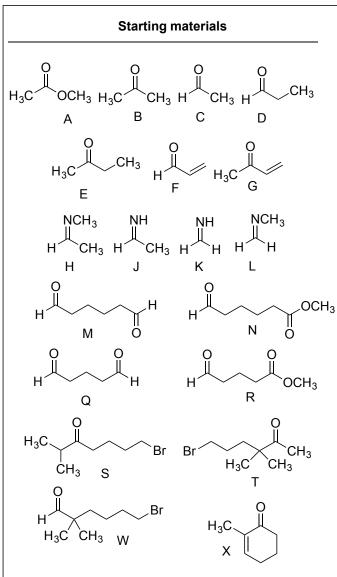
Midterm	2.	Chem	51C.	Jarvo.	Spring	19
wiiateiiii	۰,	Oncin	J.U,	oai vo,	Opining	

i.

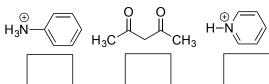
1 (19 points)

a. Fill in the correct compounds from the table to complete the syntheses.

You can use the same compound more than once.



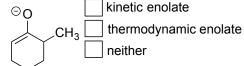
b. Provide pKa's for **any 2** of the following compounds (if you do them all, we will count your best 2).



c. Check the appropriate box or boxes.

0	$\square$ sp <sup>3</sup>
H <sub>3</sub> C NMe <sub>2</sub>	sp <sup>2</sup>
H <sub>3</sub> C \ NMe <sub>2</sub>	sp

i. Hybridization of the nitrogen:



ii. Is this the:

	H
ii.	Name of reaction:
	1. LDA  THF, -78 °C  2. CH <sub>3</sub>
	Name of reaction:
iii.	HOMe HOMe CH <sub>3</sub> CH <sub>3</sub>
	Name of reaction:
iv.	+ NaOMe HOMe
	Name of reaction:
V.	LDA O H <sub>3</sub> C H <sub>3</sub> C
iv.	+ NaOMe O O O HOMe HOMe CH <sub>3</sub>
	Name of reaction:

NaOMe

HOMe

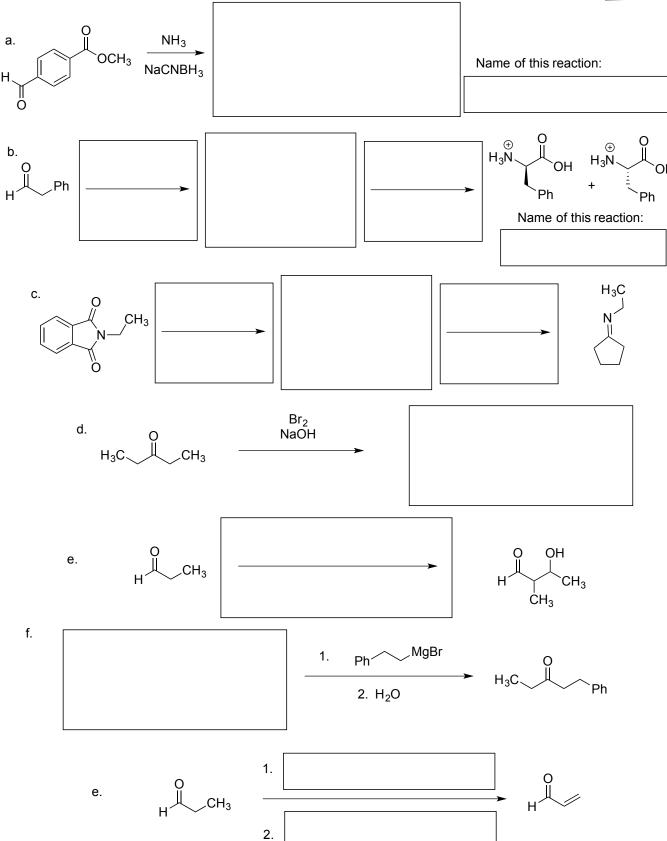
iii. A kinetic enolate is formed with:

NaOMe, HOMe, r.t.

LDA, THF, -78 °C

PPh<sub>3</sub>, then n-BuLi

3. Fill in the boxes with the appropriate starting material, reagent or major product (33 points). Show stereochemistry where appropriate (you must DRAW the enantiomers/diastereomers)



a. Fill in the compounds from the table to complete the synthesis. You can use the same compound more than once.

ii. 
$$\begin{array}{c|c} & CH_3 \\ \hline & CH_3 \\ \hline & OOO \\ \hline & H_3C \\ \end{array}$$

b. Rank the following compounds from most to least basic.

c. Provide an arrow-pushing mechanism

Ö	NaOCH <sub>3</sub> HOCH <sub>3</sub>	O <sub>O</sub>	what is the name of this mechanism?
H <sub>3</sub> CO OH		H <sub>3</sub> CO	

Mechanism:

4. (7 points) Propose a synthesis of the target below.	Initials:
+. (7 points) Fropose a synthesis of the target below.	

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

Target A.

Initials:

6. (9 points) Propose a syntheses of the target below. **All carbons** must come from the starting materials provided, you can use any reagent you wish. **YOU CAN IGNORE STEREOCHEMISTRY.** 

## **Starting Materials:**

$$H_3C$$
 $H$ 
 $H_3C$ 
 $CH_3$ 
 $CH_3$ 
 $CO_2$ 

## Target A.

5.	(8 p	oints)	Propose	a s	vntheses	of	the	target	below.

Initials:

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

## Starting Materials: H<sub>3</sub>CO OCH<sub>3</sub> H<sub>3</sub>C OCH<sub>3</sub> H<sub>3</sub>C OCH<sub>3</sub> H<sub>3</sub>C-I

## Target A.