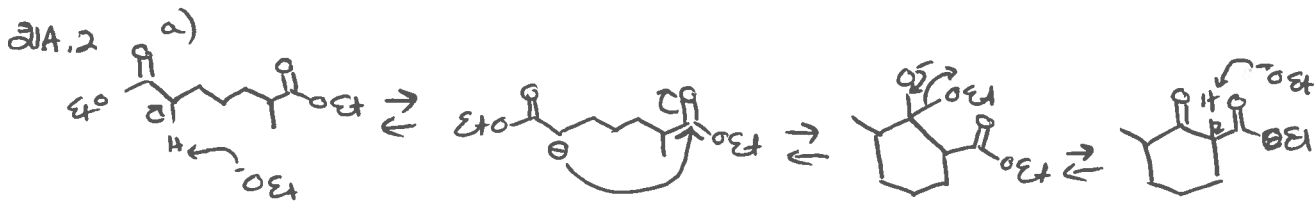
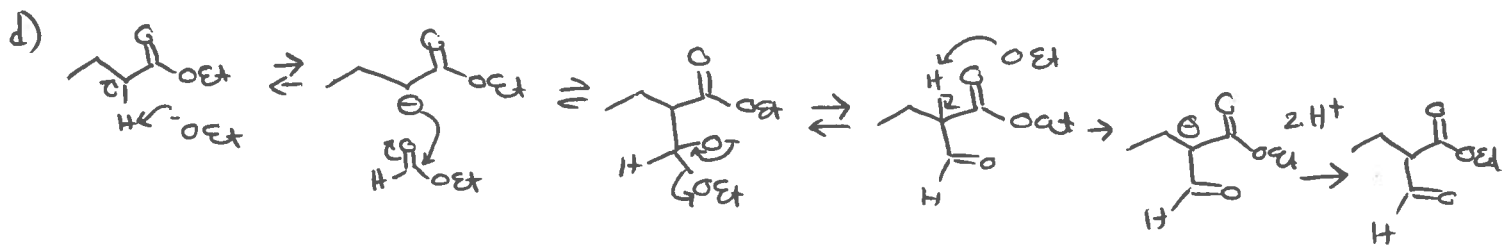
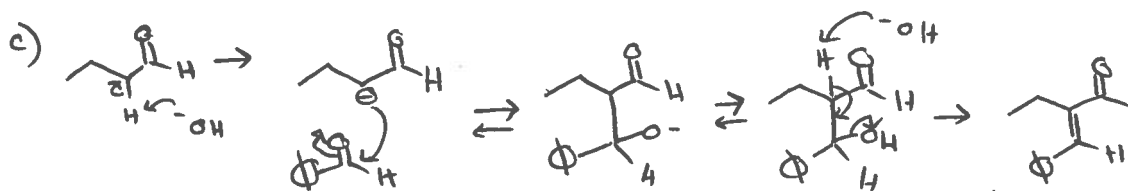
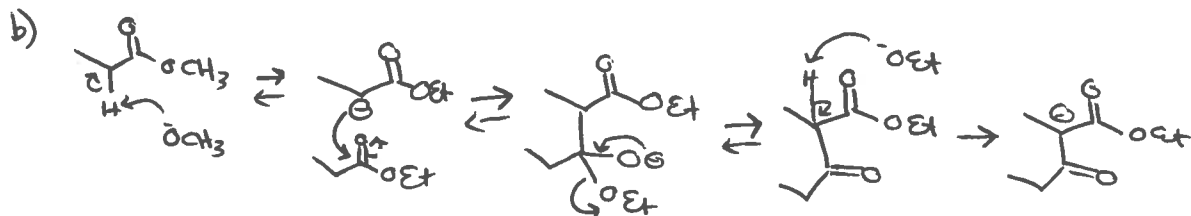
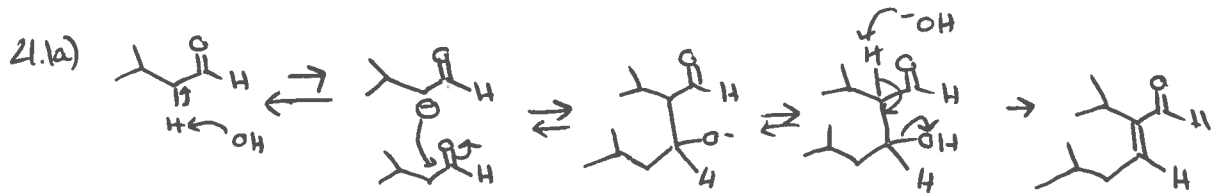
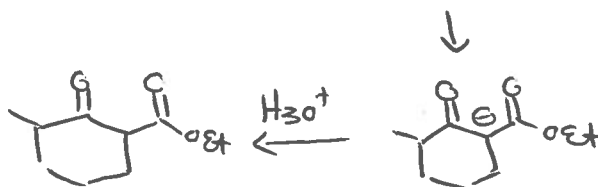


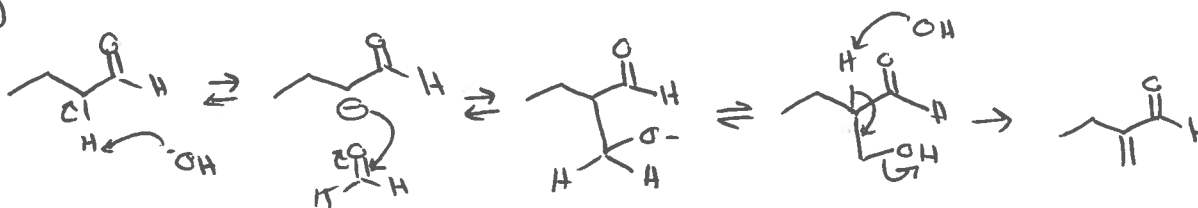
Unit 1 - Key



b) B has no acidic Hydrogen between carbonyls, so there is no driving force to form it



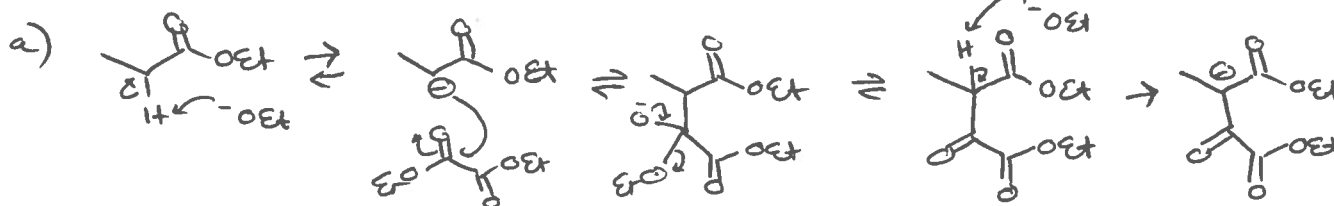
21A.3 a)



b) only one aldehyde has an acidic α Hydrogen and must be the nucleophile. Formaldehyde is less sterically hindered and therefore will react faster to nucleophilic attack

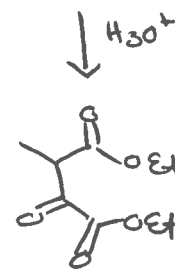
c) Formation of the $\alpha\beta$ unsaturated pi bond - stable due to conjugation

21A.4.



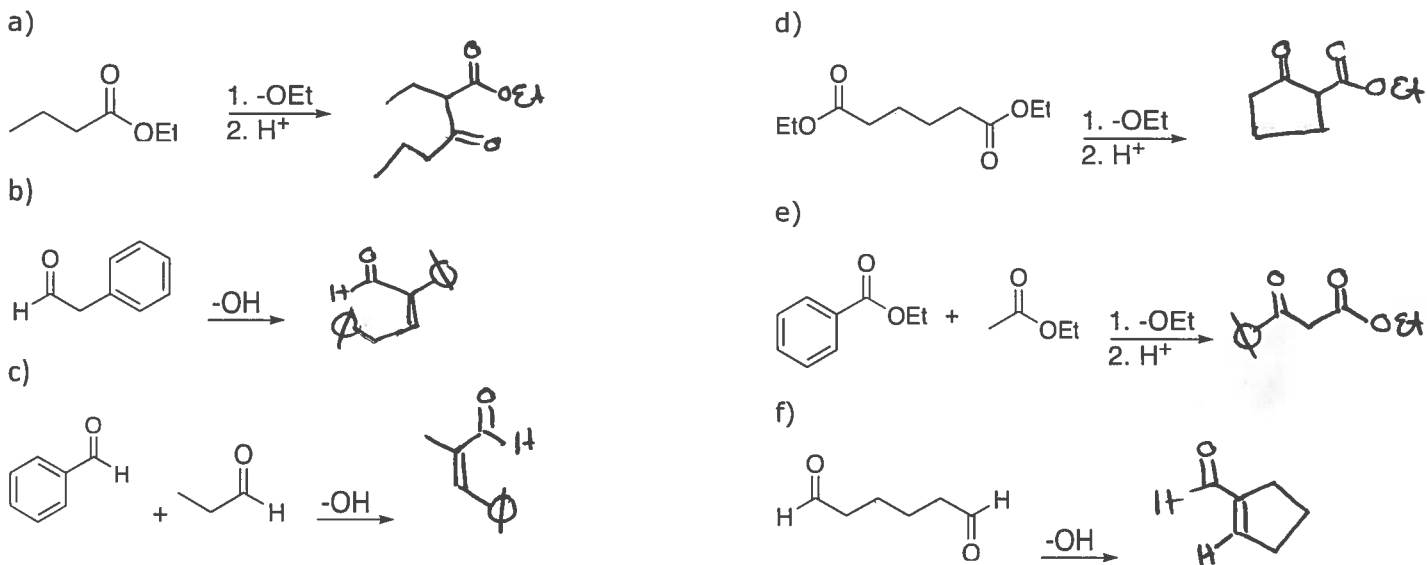
b) only one ester has an α Hydrogen.
The partner has no alkyl groups so it is less sterically hindered

c) Formation of the β -dicarbonyl enolate is irreversible.

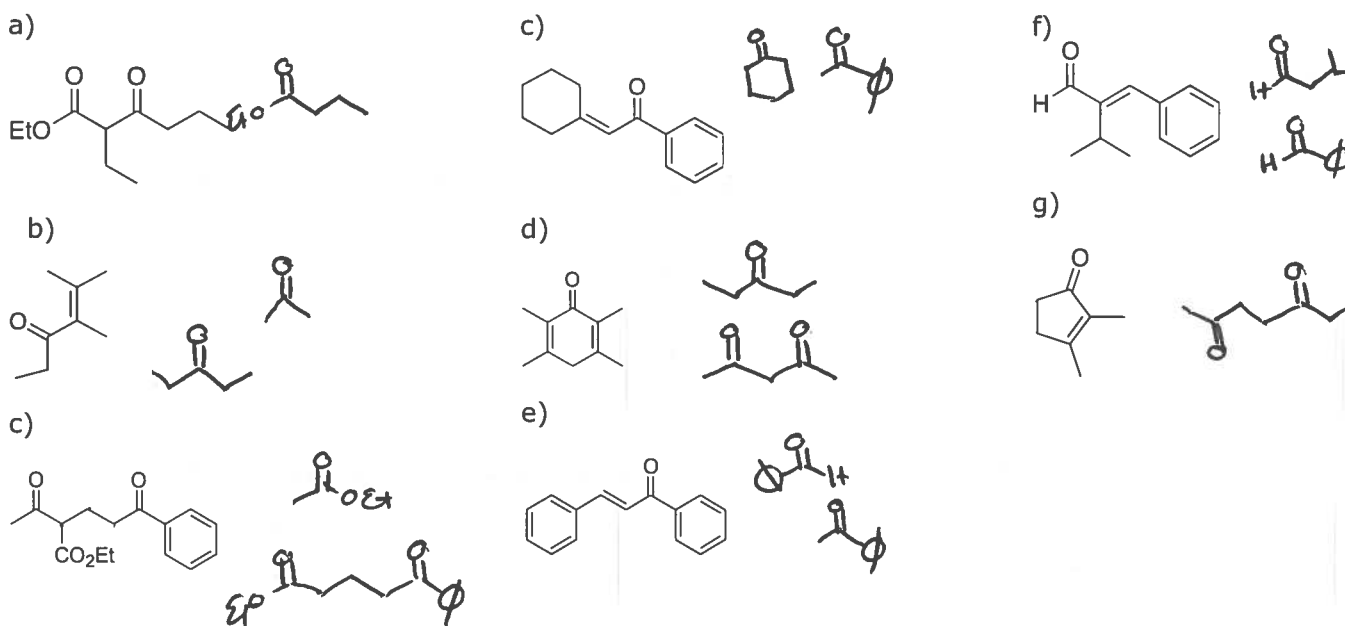


21B. Draw the products of self, mixed, and intramolecular Aldol and Claisen condensations and determine starting materials given a product.

21B.1 Predict the major products or missing reagents/starting materials of the following reactions.

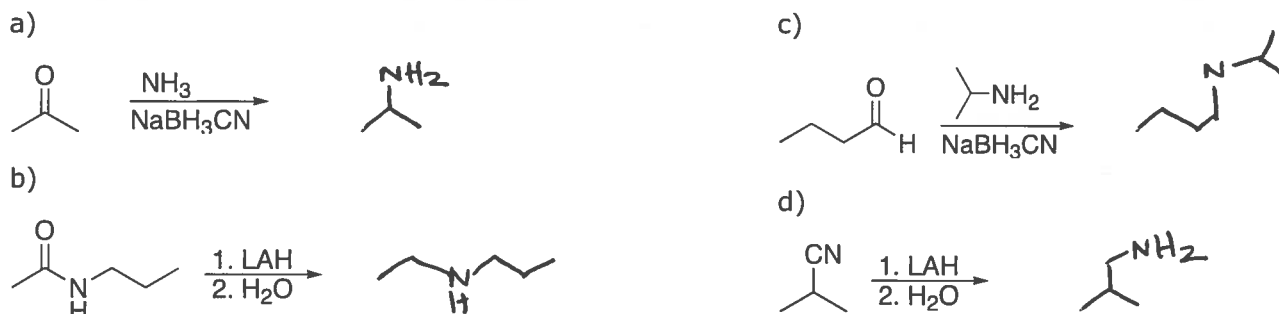


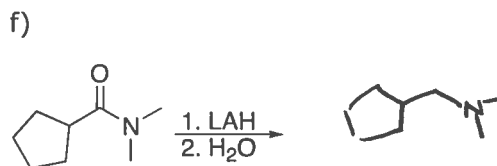
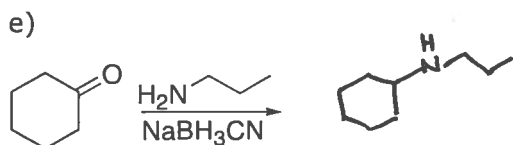
6. Draw the starting materials that could be used to form the following aldol and Claisen products.



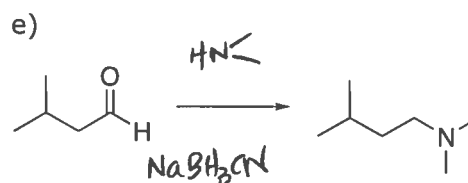
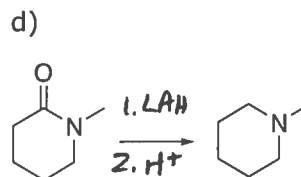
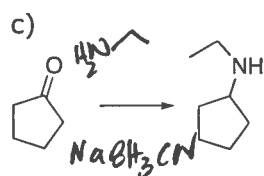
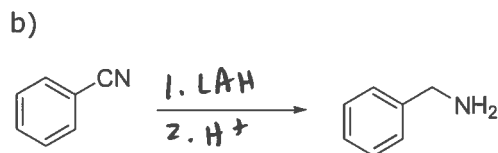
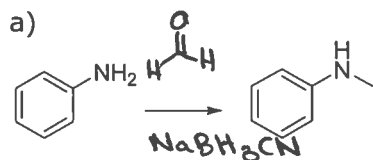
21C. Predict the products of reductive amination, and reduction of nitriles and amides.

21C.1 Predict the products of the following reactions.



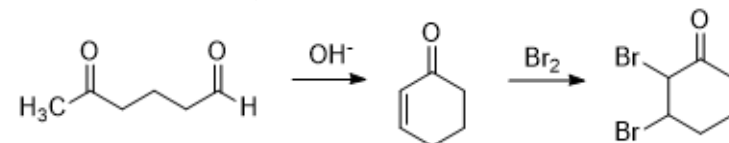
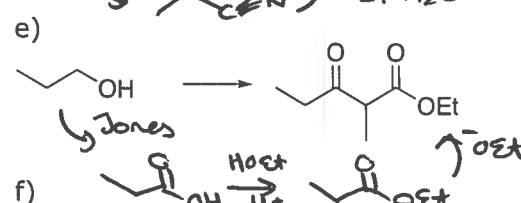
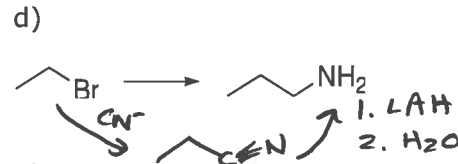
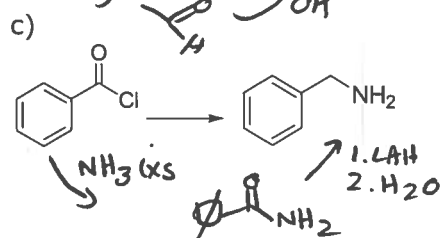
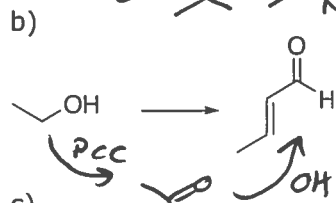
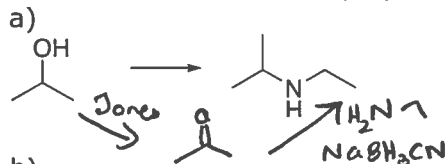


17C.2 Fill in the correct reagents for the following reactions.



21D. Use condensation and amine forming reactions as part of a multistep synthesis.

21D.1 Provide a multistep synthesis for the following transformations.



21D.2 State what is wrong with the following syntheses and propose a working synthesis.

