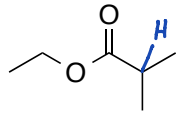
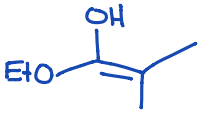
Answer Key

Chemistry 234
Chapter 22 Problem Set

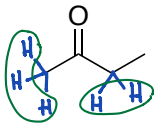
Enol and Enolate Chemistry

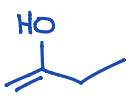
1) Circle every α-H in each molecule below. For each, draw its enol tautomer(s).

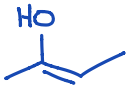


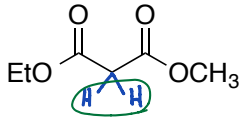


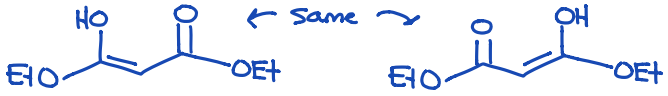
* An α-H is enolizable

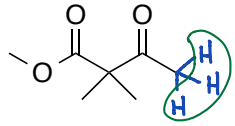


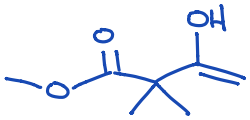


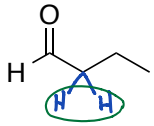


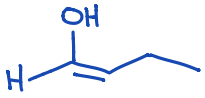






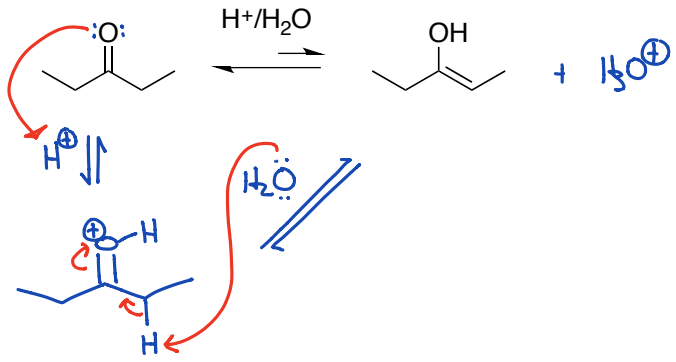




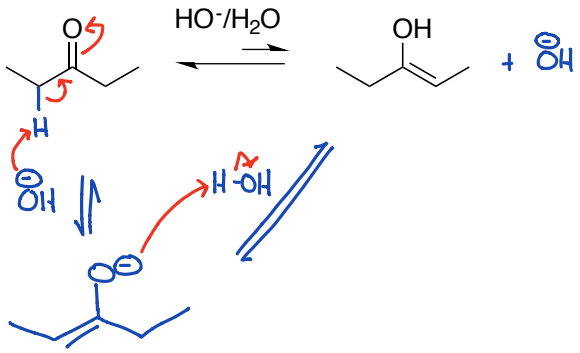


2) Draw mechanisms for both the acid and base mediated tautomerization of diethylketone.

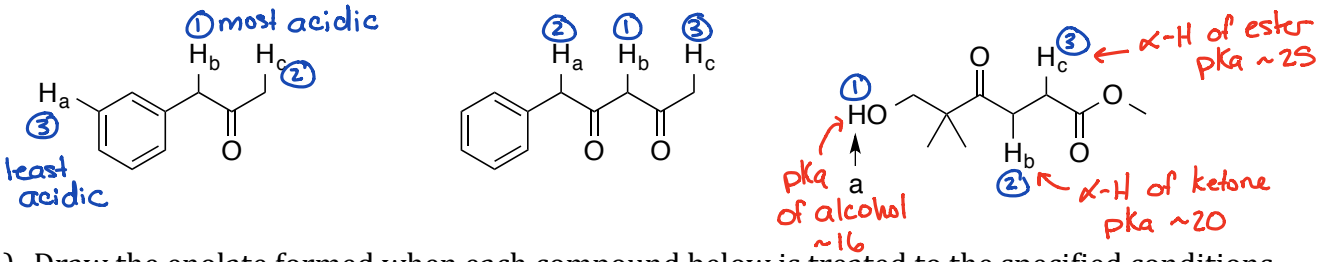
Acid Catalyzed



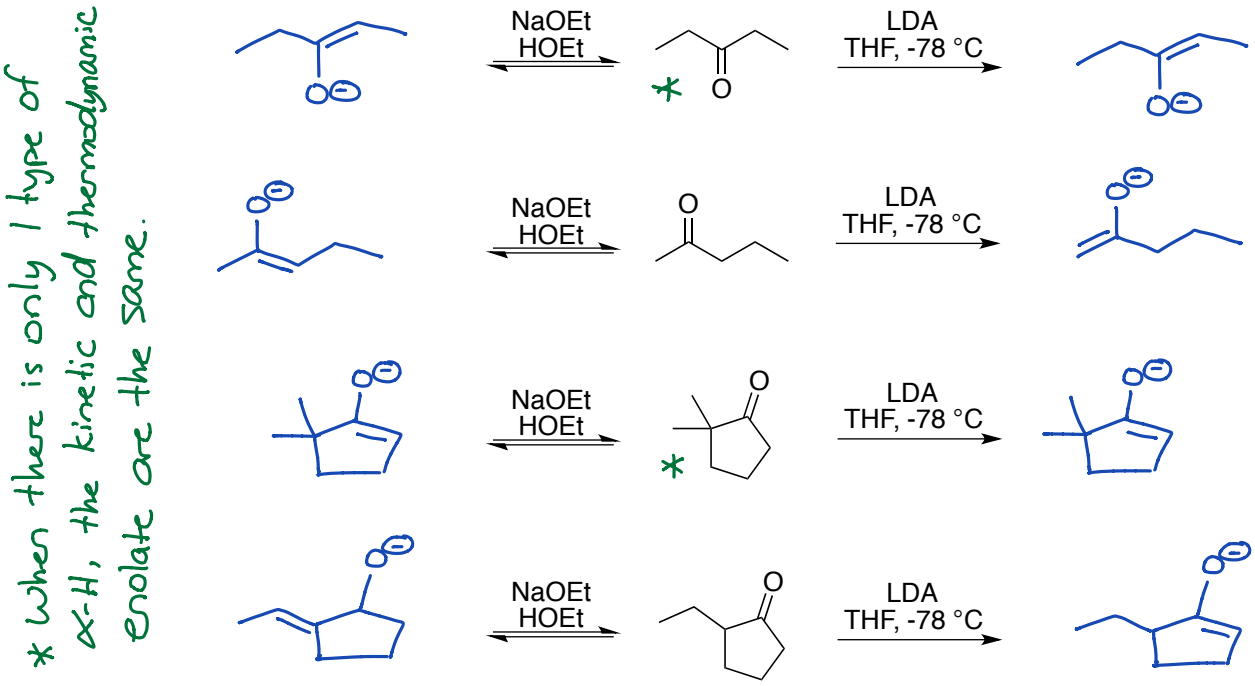
Base Catalyzed



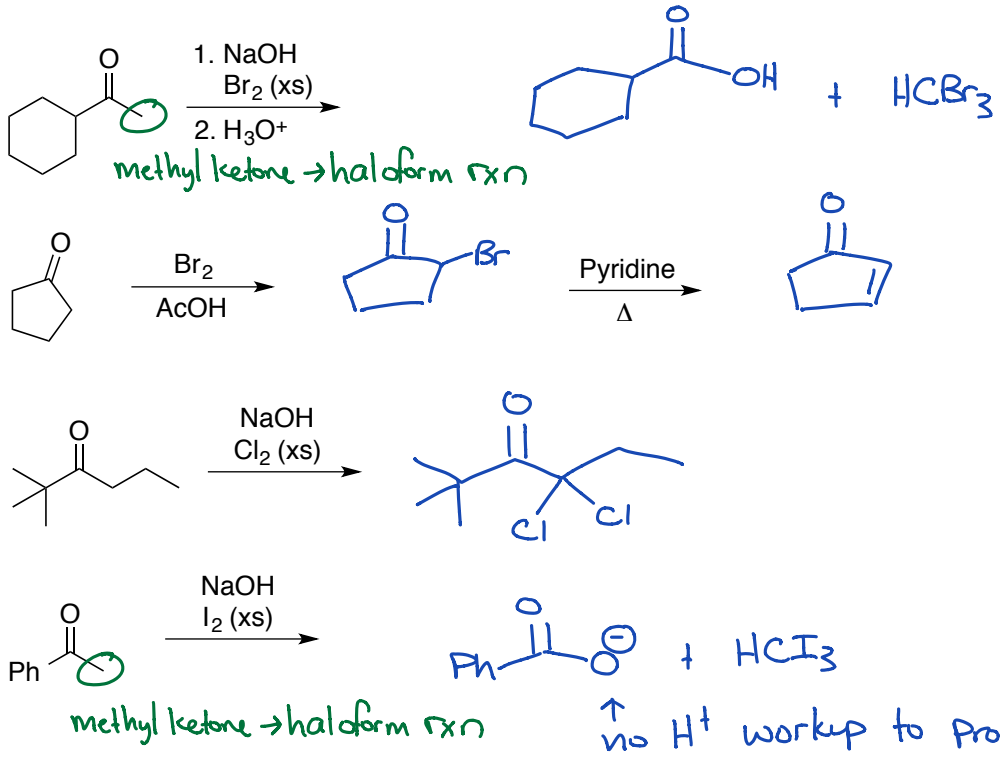
3) In each compound below, rank the labeled protons in order of increasing acidity.



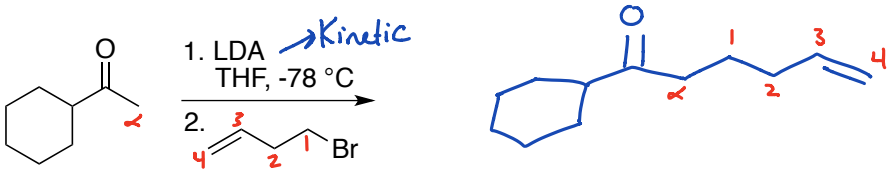
4) Draw the enolate formed when each compound below is treated to the specified conditions.

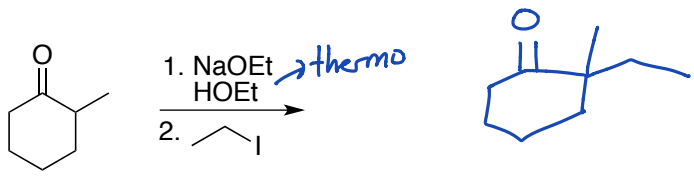


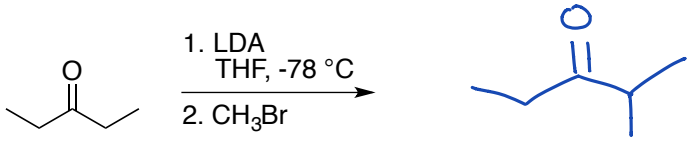
5) Predict the products for each reaction below.

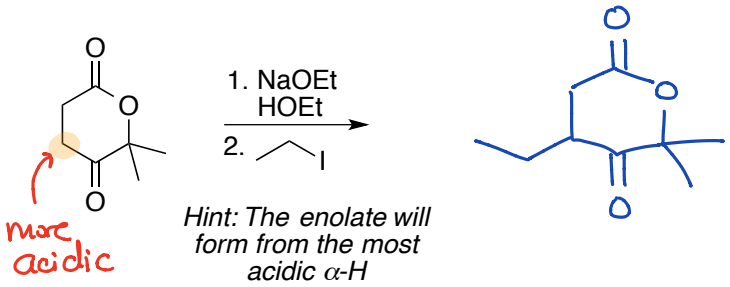


6) Predict the product for each alkylation reaction below.



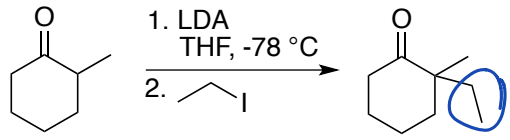




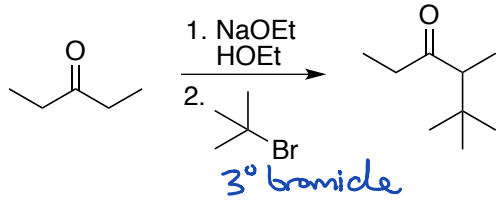


Hint: The enolate will form from the most acidic α-H

7) Explain why each reaction below does not proceed as written.



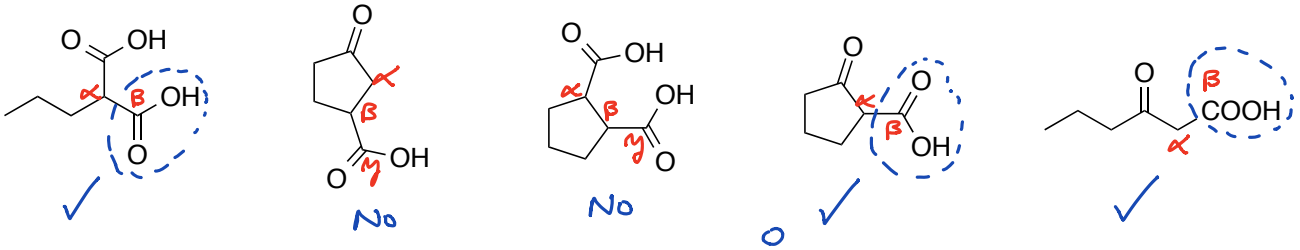
LDA = conditions to form kinetic enolate but alkylation occured from thermodynamic enolate



Enolate alkylation is an SN2 process. Can't do SN2 with a 3° halide

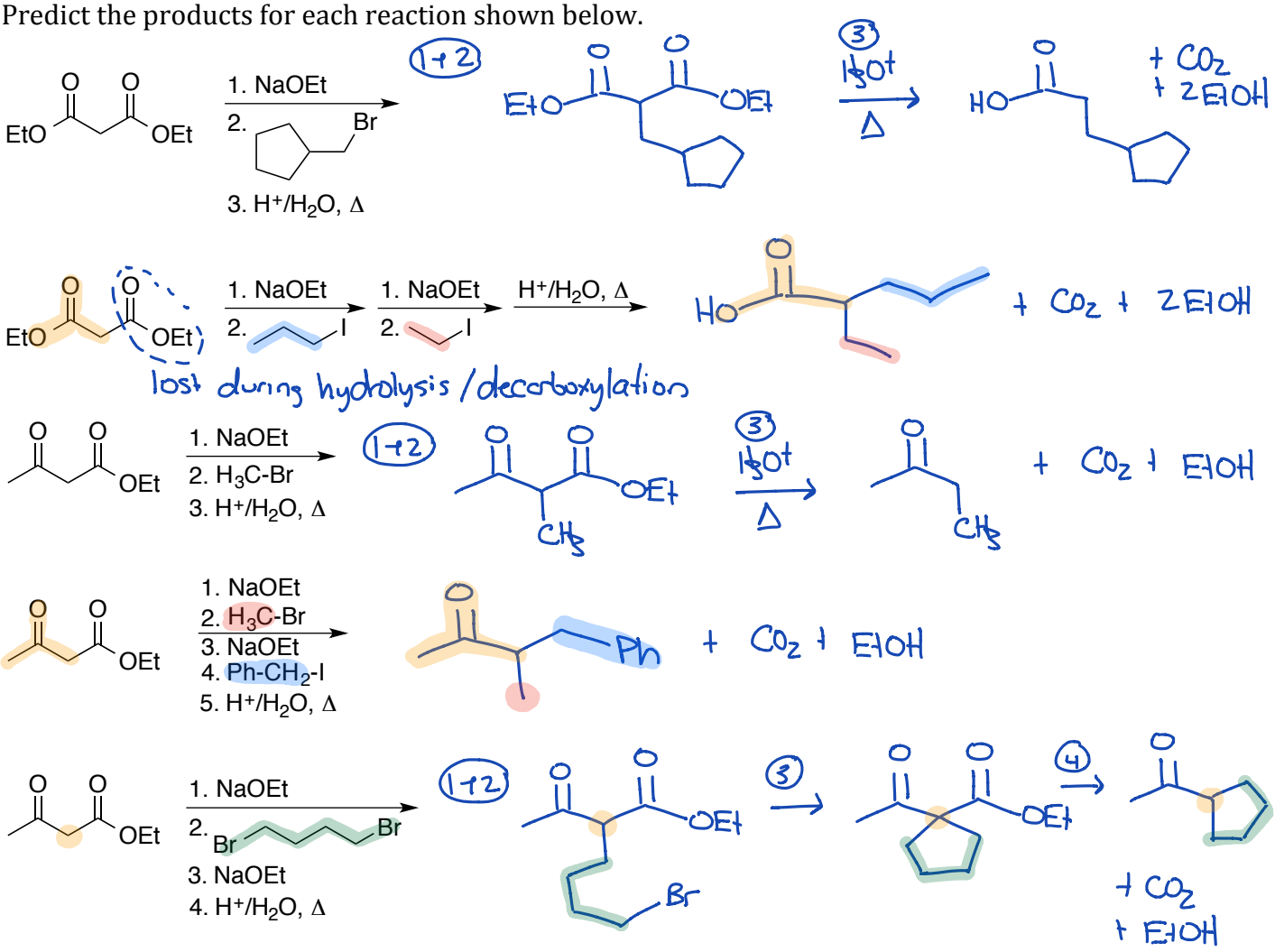
Alkylation-Decarboxylation Chemistry

8) Which of the compounds below will readily lose CO_2 when heated?



For decarboxylation, you need a β -C(=O)-OH

9) Predict the products for each reaction shown below.



10) Each compound below was prepared via the malonic ester or acetoacetic ester synthesis. Determine the starting materials used to prepare each of these compounds.