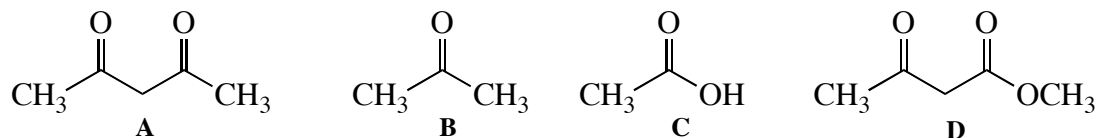
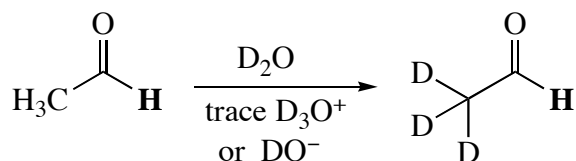


**51C Practice Problems 7**  
**Spring 2019**

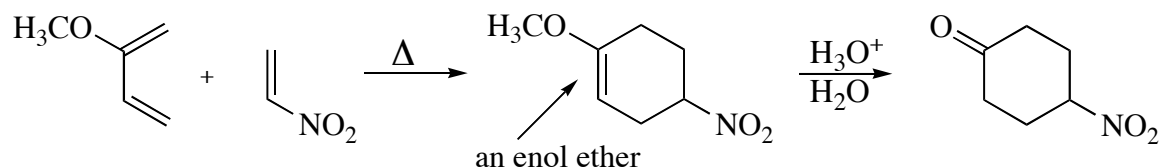
1. For the following set, write in the box a single compound letter which correctly completes the statement.



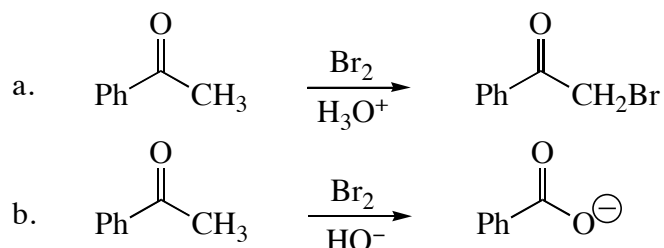
- a) The least acidic compound?
  - b) The most acidic compound?
  - c) The compound expected to form the greatest percentage of enol isomer at equilibrium?
  - d) The compound not expected to form any enol isomer at equilibrium?
2. a) When acetaldehyde is placed in deuterated water ( $D_2O$ ) with a trace of acid or base, the  $\alpha$ -hydrogens are replaced by deuteriums. Provide a mechanism for the acid catalyzed and base catalyzed reaction.



- b) Explain why the aldehydic hydrogen (the hydrogen shown in bold) in acetaldehyde does not get replaced by deuterium.
3. Diels-Alder reaction of the following dieneophile forms an enol ether. Closely related to enols, an enol ether can be hydrolyzed to a ketone. The overall strategy provides a route to cyclohexanone rings. Provide a mechanism for hydrolysis of the following enol ether:



4. Provide a mechanism for the following two  $\alpha$ -bromination reactions.



5. Predict the products or provide reagents for the following reactions:

