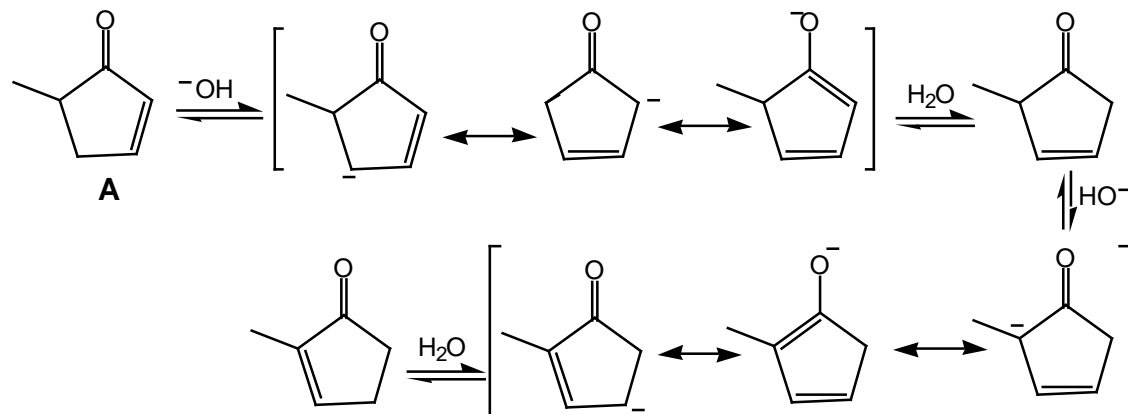
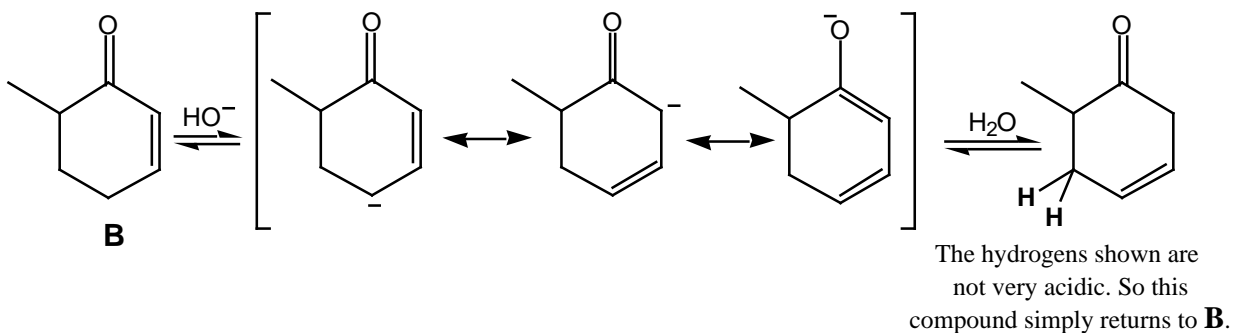


Answers to Problem Set #7  
CH242-2002S

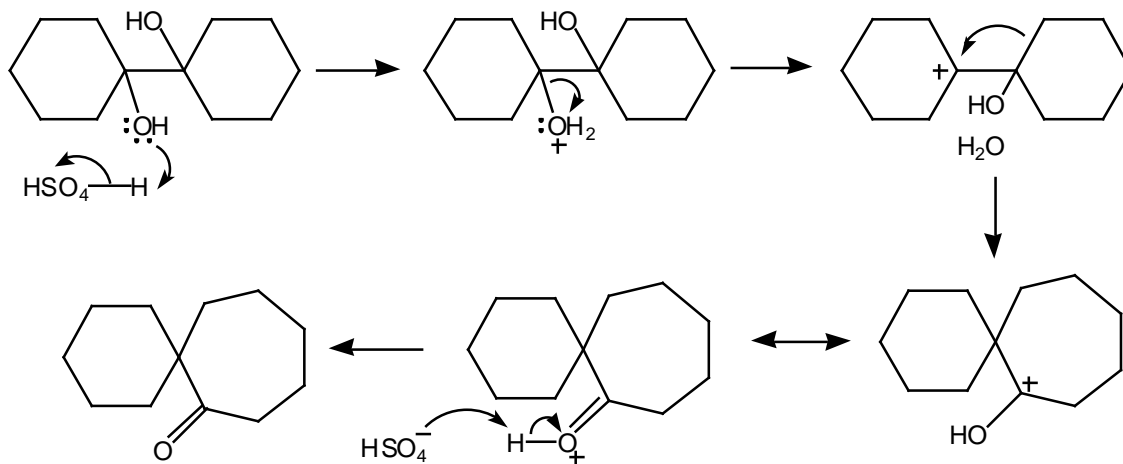
- [1] Ketone **A** isomerizes in aqueous base by a series of protonation-deprotonation reactions.



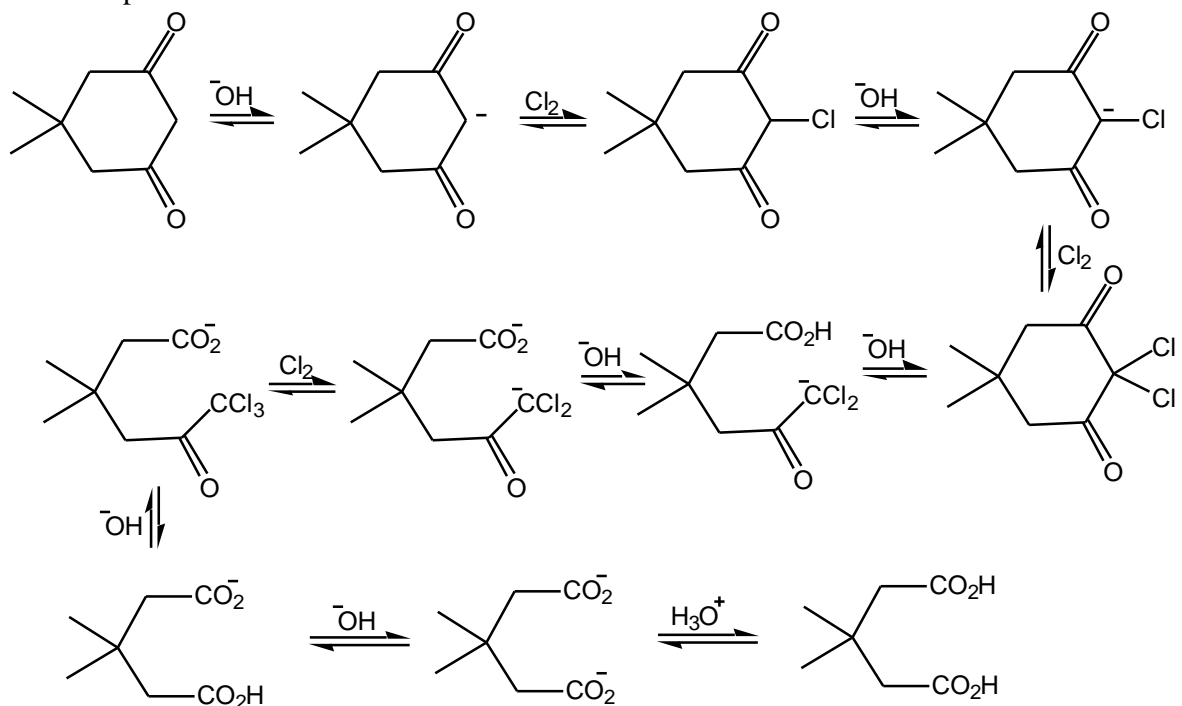
Ketone **B**, on the other hand, cannot undergo a similar isomerization as it gets "stuck" after getting to a certain point (see below).



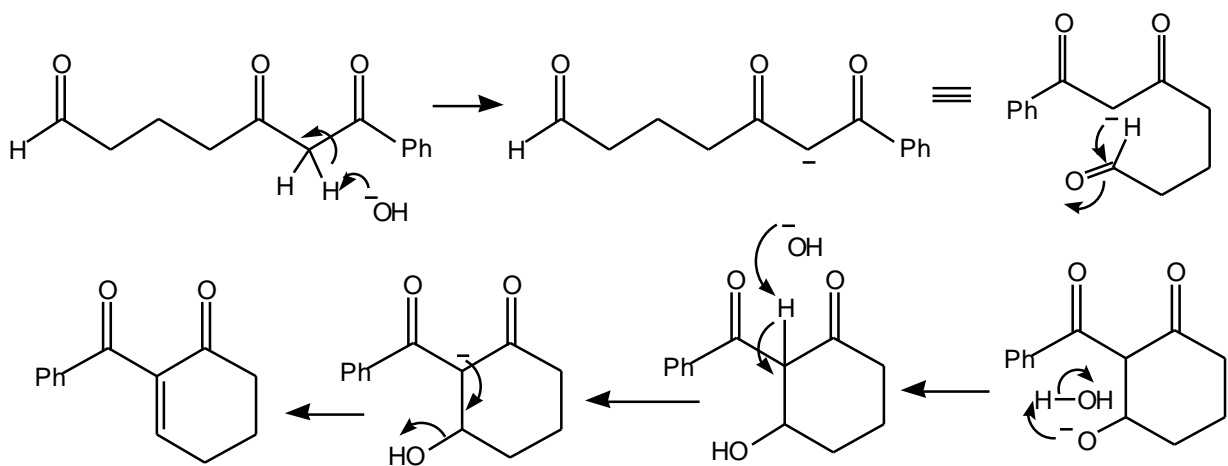
- [2] (a) This one is based on the pinacol-pinacolone rearrangement. Please check class notes.



(b) Use your knowledge of the haloform reaction to do this one. Once you recognize that the methylene protons between the two carbonyl groups can be removed by base and the resulting anion halogenated, the problem will solve itself. I have provided the intermediates. You provide the arrows.

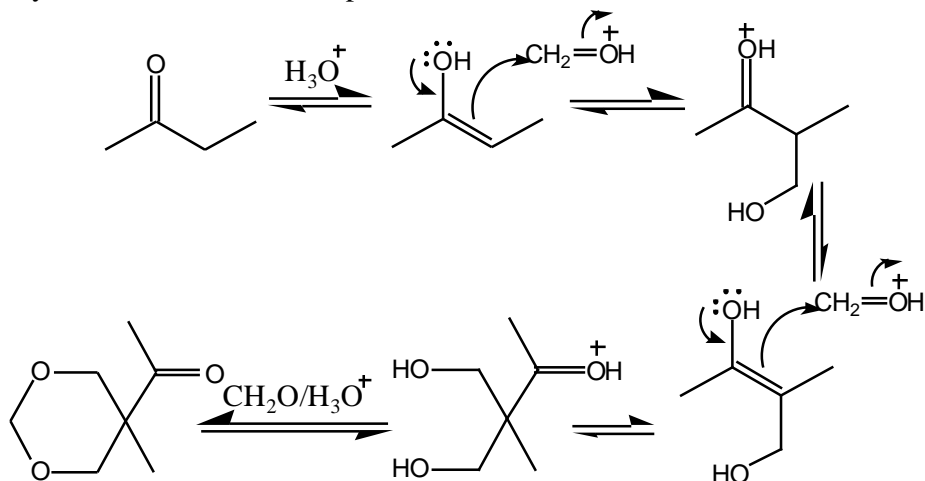


(c) This nothing more than a simple intramolecular aldol condensation.



(d) The first thing to recognize here is that the final product is an acetal of formaldehyde. While the source of formaldehyde is not a mystery (it is given as one of the reagents!), you need to find a way to make the appropriate dihydroxy compound. The critical jump here is to note that the dihydroxy compound you need has the hydroxy groups to the carbonyl group – and that should ring all kinds of aldol bells in your mind. An outline of the

mechanism is given below. Please supply the arrows for steps that do not have them. To brush up on forming acetals from alcohols and aldehydes/ketones, refer to section 16.8c as well as your class notes from chapter 15.



[3] Some ideas are given below.

