

CHE 310 – 002 & 003  
Lecture Homework #9

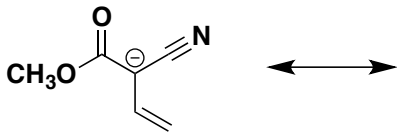
**Due:** Friday Feb 8, 2019, 10:00 am.

1. Play a minimum of five minutes with at least five attempts on the pKa Match Game

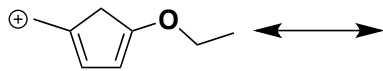
<https://www.nku.edu/~russellk/demo/login.php>

2. Draw all of the relevant resonance contributors for the molecules below. Use curved arrows to show how each structure is converted to the next. On the final structure show the arrows that would return it to the original. In each case circle the most stable resonance contributor (if there is one) and briefly explain your reasoning. Assume lone pairs fill valences as appropriate.

a.

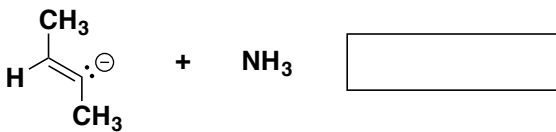


b.



3. For the acid/base equilibrium below: a) predict the product of each reaction; b) use curved arrows to show the bonds formed and broken in the reaction; c) place arrows in the box to indicate in the direction in which the equilibrium is favored; d) above the box indicate the magnitude of the equilibrium in the forward direction (reaction going from left to right). (Hint: all the pK<sub>a</sub>'s needed can be found within the pK<sub>a</sub> Match Game.)

b.



4. Rank each the acids below acids in order of increasing acidity. The molecule numbered 1 is the least acidic and the molecule numbered 4 is most acidic. Then go back and draw the conjugate bases and rank those in order of increasing basicity.

