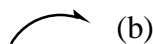
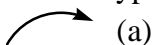


Chem 141
Problem-Set
Wednesday 19th September 2007.

1. In a couple of brief sentences, explain how to use a curved arrow.

A curved arrow is used to illustrate the movement of electrons, either bonds forming or breaking.

2. There are two types of curved arrow. What are specific situations when you would use one type or the other?

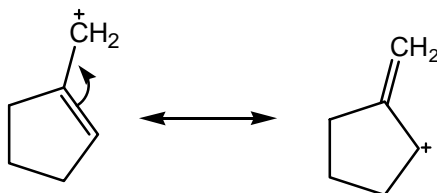


The double-headed arrow (a) is used to show 2 electrons in motion.

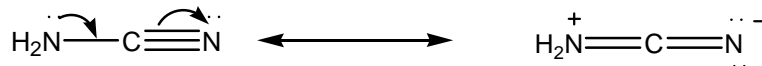
The single-headed arrow (b) (fish-hook) shows 1 electron in motion

3. Add arrow(s) to illustrate the flow of electrons required to convert from the contributing resonance structure on the left to the one on the right.

a)



b)

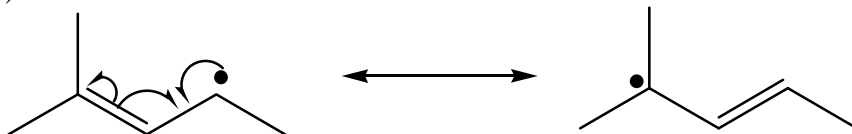


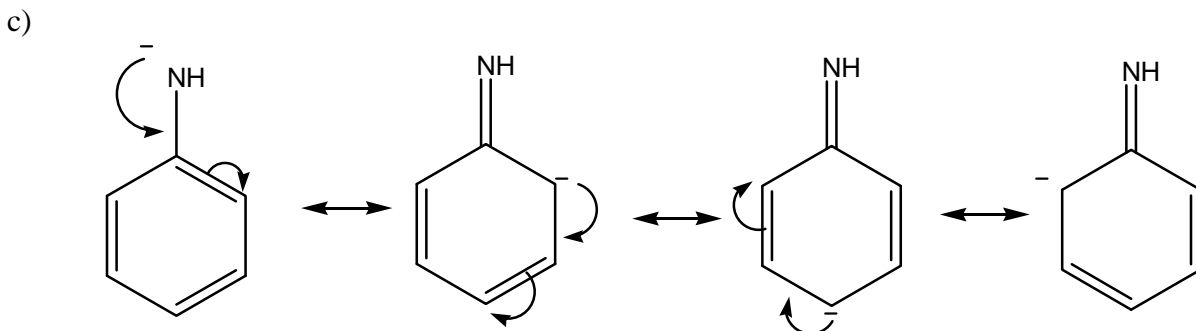
4. Provide a resonance structure for each of the following compounds.

a)



b)





5. For the following acid/base reactions

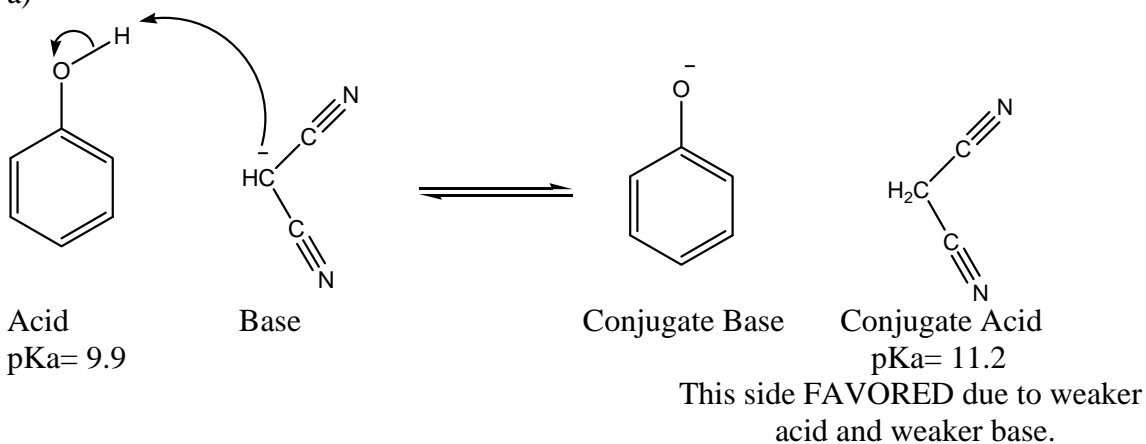
i:- Define the ACID, BASE, CONJUGATE ACID and the CONJUGATE BASE.

ii:- Find the pKa for the acids on page A-8 (at the end of your textbook).

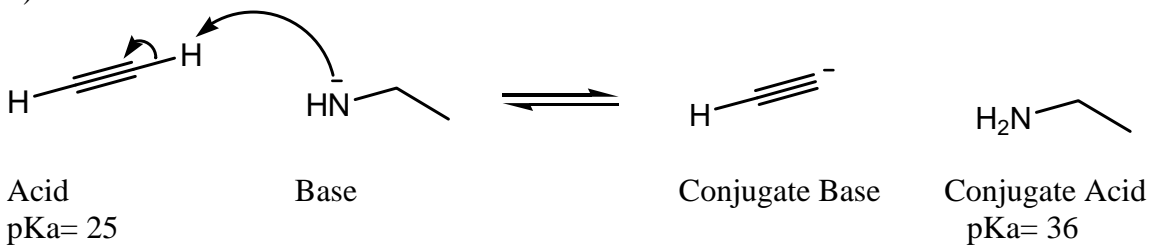
iii:- Draw arrows to show the electrons in motion.

iv:- Circle the favored side of the equilibrium.

a)

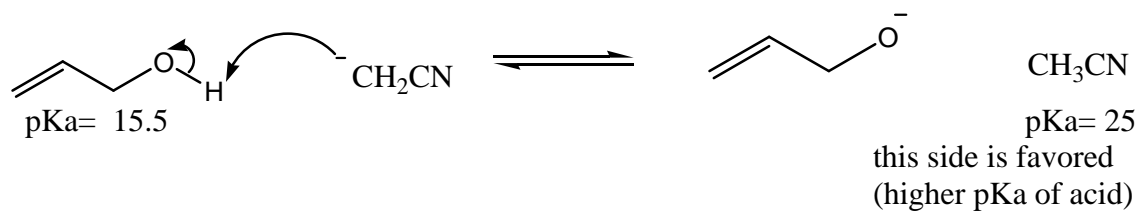


b)

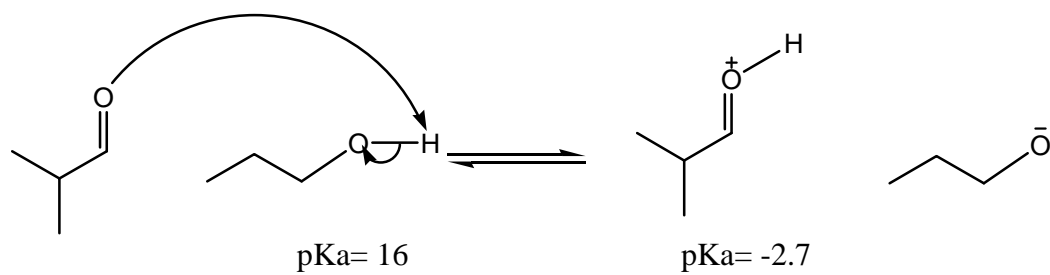


6. What are the consequences of mixing the following?

a)



b)



This side is favored (NO REACTION).
Due to higher pKa value= weaker acid.