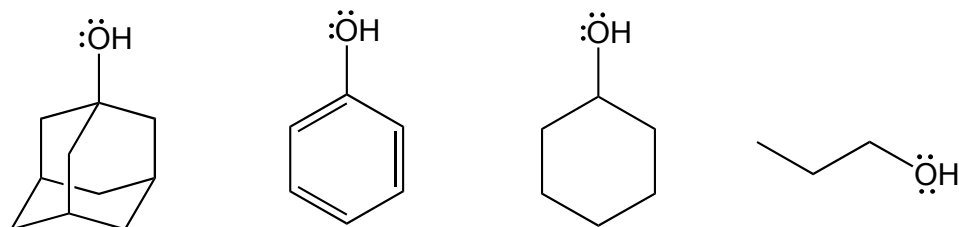


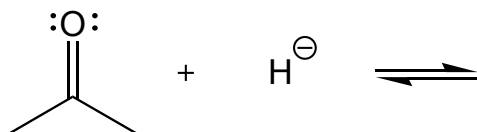
Chem 143 Problem Set 4
Friday 24th September 2010

1. Rank the following alcohols in order of increasing acidity

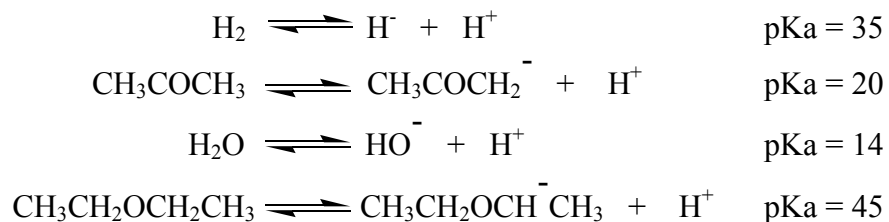


2. Predict the products of the following acid-base reaction (a) in diethyl ether, $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ and (b) in water, H_2O . Some useful pK_a values are given below.

(a)

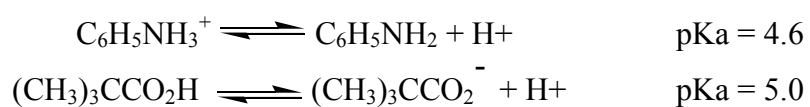


(b)



3. Write the acid-base reaction between aniline $C_6H_5NH_2$ and pivalic acid $(CH_3)_3CCO_2H$. Use bond-line structures and indicate the movement of electrons using curved arrows. If you're unsure of the structures of aniline and pivalic acid, look them up online or in the library.

Based on the following pKa values, which side of the reaction is favored, and by how much?



4. Repeat the exercise above using cyclohexylamine ($C_6H_{11}NH_2$) instead of aniline. The pKa of the cyclohexylammonium cation is 10.6.
5. Explain why the reactions in 3 and 4 are so different.

6. Draw line-bond structures for the following molecules:

(a) 2-*tert*-butylpentane

(b) 3,3-dichloropropen-1-ol

(c) *cis*-3,6-dimethyl-1,4-cyclohexadiene

(d) *trans*-1-bromo-2-chlorocyclopropane

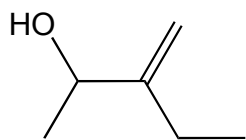
(e) 3,3-dimethylcyclopropene

(f) 1,2-dimethylcyclopropene

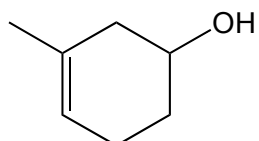
7. Which one of the above is incorrectly named?

4. Name the following molecules according to IUPAC conventions:

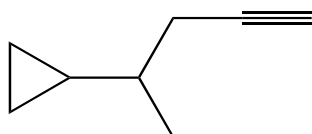
(a)



(b)



(c)



(d)

