CHM 1046 - JOENS   WORKSHEET #8   Due date: M,W,F Monday,October 17
                                                        T,R Tuesday, October 18

* While I prefer you turn in a hard copy of the worksheet, I will accept scanned copies sent to my email address, joensj@fiu.edu

Section: (circle one)   M,W,F   Tu,Tr

Exam 2 is Friday, October 21 (for the M,W,F class) and Thursday, October 20 (for the T,R class) in class. It will cover material from Chapters 15 and 16 of Burdge.

For problems involving calculations <u>you must show your work for credit</u>. Unless otherwise stated, you may assume T = 25.0 °C.

1) The pH of a 2.4 x 10^{-3} M solution of a weak monoprotic acid HA is pH = 5.38 Based on this, find the percent dissociation for the weak acid.
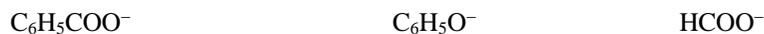
2) Consider the following list of weak acids

    C_6H_5COOH $K_a = 6.5$ x 10^{-5}
    C_6H_5OH $K_a = 1.3$ x 10^{-10}
    HCOOH $K_a = 1.7$ x 10^{-4}
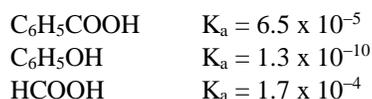
For each of the following questions circle the correct answer.

    a) The strongest acid

    C_6H_5COOH C_6H_5OH HCOOH

    b) The strongest base

    $C_6H_5COO^-$ $C_6H_5O^-$ $HCOO^-$

3) For each of the following pairs of substances circle the one that is the stronger acid. You should be able to do this without looking up values for K_a for the acids.

    a) H_2S H_2O

    b) HIO_2 HIO_3

    c) HIO_2 $HBrO_2$

4) Sodium acetate ($NaCH_3COO$, MW = 82.03 g/mol) is a soluble ionic compound. It is the salt formed from the reaction of a weak acid with a strong base.

a) Give the dissolution reaction that takes place when $NaCH_3COO(s)$ is added to water.

b) CH_3COO^- is the conjugate base of a weak acid, and so acts as Bronsed base when added to water. Give the reaction that occurs when $CH_3COO^-(aq)$ is added to water.

c) What is the pH of a 0.073 M aqueous solution of sodium acetate?   Note that for acetic acid (CH_3COOH), $K_a = 1.8 \times 10^{-5}$