Dougherty Valley HS Chemistry
Acids & Bases – More Salts

Worksheet #9

Name: **Period:** **Seat#:**

Directions:

- Show your work!
- Box final answers when it makes sense.
- Some answers are provided at the end of the problem. They are underlined.

1) An unknown salt is either KBr, NH_4Cl, KCN, or K_2CO_3. If a 0.100 M solution of the salt is neutral, what is the identity of the salt? Justify your answer!

2) An unknown salt is either NaF, NaCl, or NaOCl. When 0.050 M of salt is dissolved in water to form 0.500 L of solution, the pH of the solution is 8.08. What is the identity of the salt? Justify your answer!

3) Classify the following salts as acidic, basic or neutral. Remember (Kw = Ka x Kb)

a. $Ba(ClO_4)_2$

b. K_2CO_3

c. NH_4NO_2
Ka for NH_4^+ = 5.6 x10^{-10}
Kb for NO_2^- = 2.2x10^{-11}

d. CsOH

e. AgOH

f. $HClO_4$

g. H_2CO_3

h. $NH_4C_2H_3O_2$

i. NH_4Cl

j. NaClO

k. $Ca(NO_3)_2$

l. $KClO_4$

m. $NaNO_2$

n. NH_4Br

o. $Zn(NO_3)_2$

p. NH_4F

q. K_2CO_3

r. $KC_2H_3O_2$

s. $Fe(ClO_4)_2$

t. $NaClO_3$

u. NaF

v. $NH_4C_6H_6COO$
Ka for NH_4^+ = 5.6x10^{-10}
Ka for C6H6COOH = 6.5x10^{-5}

w. $CH_3NH_3NO_2$
Kb for CH_3NH_2 = 4.4x10^{-4}
Kb for NO_2 = 2.2x10^{-11}

4) salt of a weak acid – Calculate the pH of 0.00125M NaOCl Ka = 3.0×10^{-8}

a. write hydrolysis
b. calc Kb
c. determine $[OH^-]$ using ICE box
d. calc pOH
e. calc pH *9.28*

5) salt of a weak base – Calculate the pH of 0.00125M NH4Cl Kb = 1.8×10^{-5}

a. write hydrolysis
b. calc Ka
c. determine $[H^+]$ using ICE box
d. calc pH *6.08*

6) Sorbic acid (C_5H_7COOH) is a weak acid with Ka = 1.7×10^{-5}. Its salt, potassium sorbate, is added to cheese to inhibit the formation of mold. What is the pH of a solution containing 11.25g of potassium sorbate in 1.75 L of solution?