**Name: Period: Seat#:**

**Worksheet #9**

**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, NH4Cl, KCN, or K2CO3. 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. Identify if each substance would make the solution acidic, basic or neutral when added to water. Remember (Kw = Ka x Kb)
   1. Ba(ClO4)2
   2. K2CO3
   3. NH4NO2   
      *Ka for NH4+ = 5.6 x10-10   
      Kb for NO2- = 2.2x10-11*
   4. CsOH
   5. AgOH
   6. HClO4
   7. H2CO3
   8. NH4C2H3O2
   9. NH4Cl
   10. NaClO
   11. Ca(NO3)2
   12. KClO4
   13. NaNO2
   14. NH4Br
   15. Zn(NO3)2
   16. NH4F
   17. K2CO3
   18. KC2H3O2
   19. Fe(ClO4)2
   20. NaClO3
   21. NaF
   22. NH4C6H6COO   
       *Ka for NH4+ = 5.6x10-10  
       Ka for C6H5COOH = 6.5x10-5*
   23. CH3NH3NO2  *Kb for CH3NH2 = 4.4x10-4*

*Kb for NO2- = 2.2x10-11*

1. **salt of a weak acid** – Calculate the pH of 0.00125M NaOCl Ka = 3.0 x 10-8
   1. write hydrolysis
   2. calc Kb
   3. determine [OH-] using ICE box
   4. calc pOH
   5. calc pH *9.28*
2. **salt of a weak base** – Calculate the pH of 0.00125M NH4Cl Kb = 1.8 x 10-5
   1. write hydrolysis
   2. calc Ka
   3. determine [H+] using ICE box
   4. calc pH *6.08*
3. Sorbic acid (C5H7COOH) is a weak acid with Ka = 1.7 x 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?