Name_____

1) The stronger the acid, then which of the following is TRUE? 1) _____
    A) The stronger the conjugate acid.
    B) The stronger the conjugate base.
    C) The weaker the conjugate acid.
    D) The weaker the conjugate base.
    E) None of the above.

2) Place the following in order of increasing acid strength. ("< "means less than) 2) _____

       $HBrO_2$ $HBrO_3$ $HBrO$ $HBrO_4$

    A) $HBrO_2 < HBrO_3 < HBrO_4 < HBrO$
    B) $HBrO < HBrO_4 < HBrO_3 < HBrO_2$
    C) $HBrO < HBrO_2 < HBrO_3 < HBrO_4$
    D) $HBrO_4 < HBrO_2 < HBrO_3 < HBrO$
    E) $HBrO_2 < HBrO_4 < HBrO < HBrO_3$

3) Which of the following solutions would have the highest pH? Assume that they are all 0.10 M in 3) _____
  acid at 25°C. The acid is followed by its K_a value.
    A) HCN, 4.9×10^{-10}
    B) HF, 3.5×10^{-4}
    C) HNO_2, 4.6×10^{-4}
    D) $HCHO_2$, 1.8×10^{-4}
    E) $HClO_2$, 1.1×10^{-2}

4) Which of the following is TRUE? 4) _____
    A) An neutral solution does not contain any H_3O^+ or OH^-
    B) A neutral solution contains $[H_2O] = [H_3O^+]$
    C) A basic solution does not contain H_3O^+
    D) An acidic solution has $[H_3O^+] > [OH^-]$
    E) None of the above are true.

5) Calculate the concentration of H_3O^+ in a solution that contains 5.5×10^{-5} M OH^- at 25°C. 5) _____
  Identify the solution as acidic, basic, or neutral.

6) Calculate the concentration of OH⁻ in a solution that contains 3.9×10^{-4} M H_3O^+ at 25°C.   6) _____
   Identify the solution as acidic, basic, or neutral.

7) Determine the pOH of a 0.00598 M $HClO_4$ solution.   7) _____

8) What is the hydronium ion concentration of an acid rain sample that has a pH of 3.45?   8) _____

9) Calculate the pH of a solution that contains 7.8×10^{-6} M OH⁻ at 25°C.   9) _____

10) Determine the pH of a 0.461 M $C_6H_5CO_2H$ M solution if the K_a of $C_6H_5CO_2H$ is 6.5 x 10^{-5}.

10) _____

11) What is the difference between a strong and weak acid?

11) _____

12) What is the *autoionization* of water?

12) _____

Answer Key
Testname: QUIZ 15.2-15.6, ONLY PART OF SECTION 6 (B)

1) D
2) C
3) A
4) D
5) 1.8×10^{-10} M, basic
6) 2.6×10^{-11} M, acidic
7) 11.777
8) 3.55×10^{-4} M
9) 8.89
10) 2.26
11) A strong acid ionizes/dissociates completely into H^+ and an anion, whereas a weak acid only ionizes/dissociates to a small extent to form H^+ and an anion.
12) Autoionization of water is the equilibrium process where one water molecule will transfer its proton to another. This forms hydroxide ions and hydronium ions in equal numbers in solution. This autoionization process of water is what allows us to relate hydronium and hydroxide ion concentrations in aqueous solutions of acids and bases.