Name _____

Date _____ **Pd** ____

Chemistry – Unit 11 Worksheet #1

Acid & Base Solutions

1. In the Bronsted-Lowry definition, what is an acid? What is a base? What specific ion is the basis for the Bronsted-Lowry model for acid-base reactions?

2. Using the generic symbol for an acid, HA, write the dissociation reaction for an acid dissolving in water. Identify the conjugate base in the reaction.

3. When an acid is dissolved in water, what key ion is produced? What is the relationship of this ion to water itself?

4. Using the generic symbol for a base, B, write the dissociation reaction for a base dissolving in water. Identify the conjugate acid in the reaction.

5. When a base is dissolved in water, what key ion is produced? What is the relationship of this ion to water itself?

6. Write a chemical equation showing how each chemical species behaves as an acid when dissolved in water.

   a. H_2SO_3

   b. NH_4^+

7. Write a chemical equation showing how each chemical species behaves as a base when dissolved in water.

   a. NH_3

   b. F^-

8. In questions 6 and 7, label the acid (A) and base (B) in the reactants and the conjugate acid (CA) and conjugate base (CB) in the products.

9. In each of the following equations, identify the conjugate acid-base pairs (use the A,B, CA, CB notation from question 6)

   a. $HSO_4^- + H_2O \leftrightarrow SO_4^{2-} + H_3O^+$

   b. $NH_2^- + H_2O \leftrightarrow NH_3 + OH^-$

10. Which of the following represent conjugate acid-base pairs? For those pairs that are not conjugates, write the correct conjugate acid or base for *each* species in the pair

    a. HNO_3, NO_3^-

    b. $HClO_4$, ClO_3^-

    c. H_2SO_4, H_2SO_3

11. Give the conjugate acid of the following bases:

    a. $H_2PO_4^-$

    b. NO_2^-

12. Give the conjugate base for each of the following acids:

    a. $H_2PO_4^-$

    b. H_3O^+

13. Write the name for each of the following chemical formulas of an acid:

    a. HBr

    b. H_2SO_3

    c. $HClO_3$

    d. $HC_2H_3O_2$

14. For each acid listed, write the chemical formula:

    a. hydrofluoric acid

    b. phosphoric acid

    c. chlorous acid

    d. carbonic acid