Unit 10: Ch 19 – Acid/Base Strengths & pH/pOH Calculations

STRONG Acids/Bases:

- **DEFINITION –**
  - Produces _____ number of _____
  - Ex: HCl is _____ dissociated → Reaction goes to _____
    - _____ reaction

WEAK Acids/Bases:

- **DEFINITION –**
  - Produces _____ H^+ / OH^-
  - _____ reaction → Reactants/products are at _____

TYPES OF ACIDS:

- **BINARY Acids –** Contains _____ and _____ anion Ex: _____
- **TERNARY Acids –** Contains _____ and _____ anion Ex: _____
- **HOW TO DETERMINE IF STRONG ACID (SA)/WEAK ACID (WA):**
  - **TERNARY Acids** → Number of _____ : Number of _____ ratio
    - Number of ***oxygen*** _____ number of ***hydrogen*** by _____ =
      - _____ acid
        - Ex: _____ → 3 hydrogen/4 oxygen → _____
        - Ex: _____ → 2 hydrogen/4 oxygen → _____

MEMORIZE!!!! STRONG Acids:

- _____ → hydrochloric
- _____ → hydrobromic
- _____ → hydroiodic
- _____ → sulfuric
- _____ → nitric
- _____ → chloric
- _____ → perchloric

MEMORIZE!!!! STRONG Bases:

- _____ _____ _____
- _____ _____ _____
- _____ _____

ACID/BASE STRENGTH TO CONJUGATES:

- _____ = _____ , respectively and VICE VERSA
- **Acid-Base Reaction TRENDS:**
  - _____ = Neutral _____ = Acidic
  - _____ = Neutral _____ = Basic
- **Acid-Base NEUTRALIZATION Reactions:** HBr + LiOH → LiBr + H_2O
  - A/B & Conjugates:
  - Strength:

pH/pOH CALCULATIONS FORMULAS:

- _____ → _____
- _____ → _____
- _____
- _____
- _____ → _____
- _____

PRACTICE:

1. If the pH of Coca Cola is 3.12, what is its $[H^+]$ concentration?

2. Calculate the pH in a 0.00150 M $Ba(OH)_2$ solution.

3. What is the $[OH^-]$ concentration of a solution with $[H^+]$ of 1.00×10^{-5} M? Acidic, basic, or neutral?

4. What is the pOH of 3.00×10^{-7} M nitric acid solution? Acidic, basic, or neutral?

5. What is the pH of a solution containing 35.0 grams of sulfuric acid dissolved in 1250mL of solution?