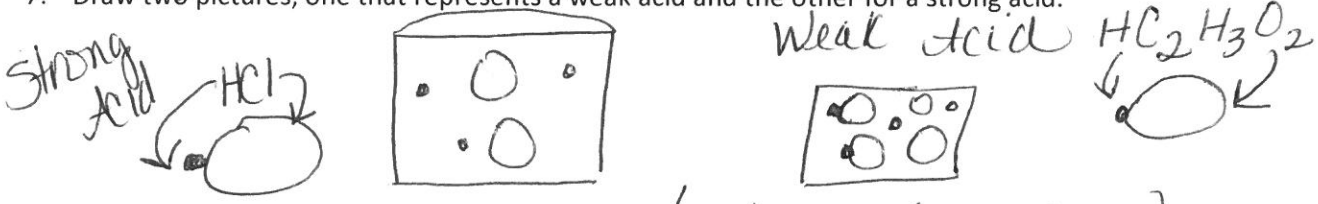
Name: Key Date: _____ Period: _____

$H^+ \approx H_3O^+$

Pretest-Study Guide "Acid-Bases"

General Chem.

1. According to the Arrhenius Theory, acids give off (increase) H^+ in an aqueous solution.
2. The hydrogen ion consists of a proton. (H^+)
3. In water, the hydrogen ion exists has a H_3O^+. ← hydronium ion
4. A weak base partially dissociates in water.
5. List the strong acids you were instructed to memorize
   In your notes
6. List the strong bases you were instructed to memorize
   In your notes
7. Draw two pictures, one that represents a weak acid and the other for a strong acid.



8. According to the Bronsted-Lowry Theory, acids donate proton (H^+)

~~9. Identify the two conjugate acid-base pairs in $NH_3 + HCl \leftrightarrow NH_4^+ + Cl^-$.~~

10. In an acidic solution, the $[H_3O^+]$ > $[OH^-]$.
11. In a neutral solution, the $[H_3O^+]$ = $[OH^-]$.
12. A solution that has a pH= 2 is how many times more acid than pH= 5?
    $10 \times 10 \times 10 = 1000$
13. What is the pH of a solution of HCl with a hydronium ion concentration of 0.02 M
    $pH = -\log[H^+]$ $pH = 1.7$
14. A solution of nitric acid has a pH= 2.50. What is the hydronium ion concentration?
    $\text{antilog} -pH \rightarrow 3.16 \times 10^{-3}\ M$
15. What is the pH of a solution of NH_3 with a $[OH^-]$ of $1{,}55 \times 10^{-4}$ M?
    $pH + pOH = 14$; $pOH = -\log[\ ] \Rightarrow pOH = 3.810$ $pH = 10.19$
16. What is the pH of a 0.0300 M H_2SO_4 solution? Diprotic
    $0.0300 \times 2 \rightarrow 0.0600$ $pH = -\log[0.0600] \Rightarrow pH\ 1.222$

~~17. Is a solution with pH= 2 more acidic than a solution with a pOH=12?~~

18. NH_3 is a weak base.

19. What is the formula for phosphoric acid?
H_3PO_4

20. What is the formula for magnesium hydroxide?
$Mg(OH)_2$

21. An acid-base neutralization reaction is a double displacement type of reaction.

22. Neutralization reactions are use in acid-base titrations.

23. The neutralization of a strong acid and a strong base will make a neutral salt in water.

24. The neutralization of a weak acid and a strong base will make a slightly basic solution.

25. 20.0 ml of 2.50 M NaOH solution was used to titrate 40.0 ml of HCl. What is the [HCl]?
$M_1V_1 = M_2V_2$
$20.0(2.50) = x(40) \Rightarrow 1.25\ M\ HCl$

26. How much of a 5.50 M HCl solution was used to titrate 50.0 ml of 4.0 M $NaOH_{(aq)}$?
$M_1V_1 = M_2V_2$
$5.5(x) = 4.0(50) = V_1 = 36.4$

27. Name the acid $HClO_3$ chloric?

28. Name the acid H_2S hydrosulfuric acid

29. Name the acid H_2SO_3 sulfurous acid

30. Review your notes that lists the properties of acids and bases. As well as examples of Acids and Bases!!!!