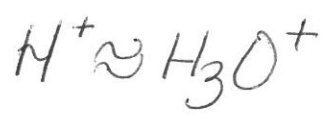

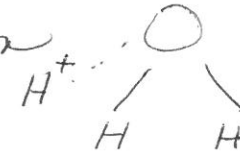
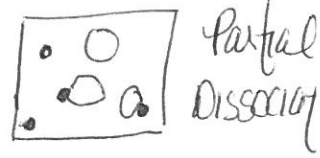
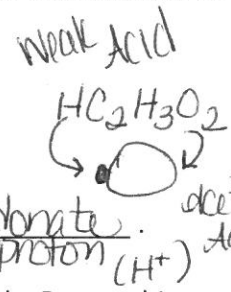
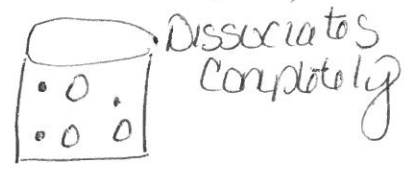
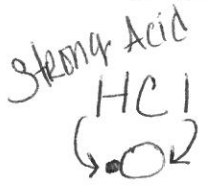


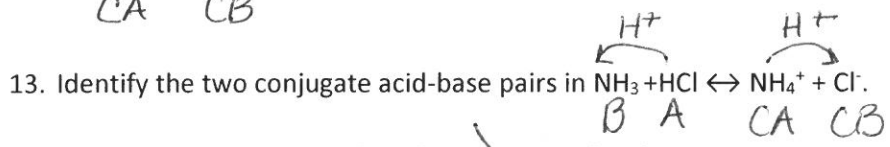
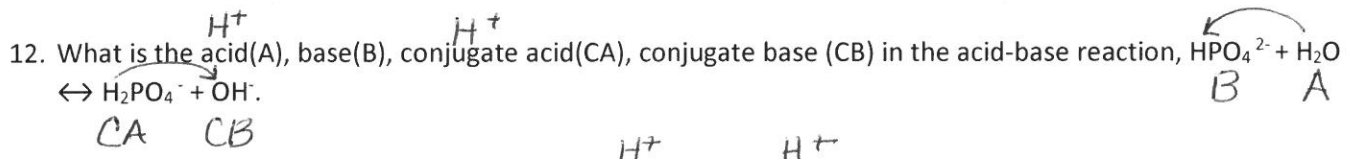
Pretest-Study Guide "Acid-Bases"
Honors Chem.



- Hydrochloric acid reacts with magnesium. What gas is evolved? S.R.
 $2HCl(aq) + Mg(s) \rightarrow H_2(g) + MgCl_2(aq)$
- Will KOH react with Mg?
No
- According to the Arrhenius Theory, acids give off (increase) H^+ in an aqueous solution.
- The hydrogen ion consists of a proton.  just a proton
- In water, the hydrogen ion exists as a H_3O^+ .
 hydronium ion
- A weak base partially dissociates in water.
- List the strong acids you were instructed to memorize.
In your notes
- List the strong bases you were instructed to memorize.
In your notes
- Draw two pictures, one that represents a weak acid and the other for a strong acid.



- According to the Bronsted-Lowry Theory, acids donate proton (H^+).
acetic acid
- A substance that "acts" like an acid and a base in the Bronsted-Lowry Theory is called a(n) amphoteric.



- In an acidic solution, the $[H_3O^+] > [OH^-]$.
- In a neutral solution, the $[H_3O^+] = [OH^-]$.

16. A solution that has a pH= 2 is how many times more acid than pH= 5?

$10 \times 10 \times 10 = 1000$

17. What is the pH of a solution of HCl with a hydronium ion concentration of 0.02 M $pH = -\log[H^+]$
 $pH = 1.7$

18. A solution of nitric acid has a pH= 2.50. What is the hydronium ion concentration?

$\text{antilog}^{-pH} \rightarrow 3.16 \times 10^{-3} M$

19. What is the pH of a solution of NH_3 with a $[\text{OH}^-]$ of $1.55 \times 10^{-4} \text{ M}$?

$$\text{pH} + \text{pOH} = 14 ; \text{pOH} = -\log [\text{OH}^-] \Rightarrow \text{pOH} \rightarrow 3.810 \quad \text{pH} = 10.19$$

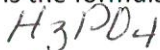
20. What is the pH of a 0.0300 M H_2SO_4 solution? *Trick Question: Diprotic!!! Strong Acid*
 $0.0300 \times 2 = 0.0600 \text{ M}$ $\text{pH} = -\log [0.0600] \Rightarrow \text{pH} = 1.222$

21. Is a solution with $\text{pH} = 2$ more acidic than a solution with a $\text{pOH} = 12$?

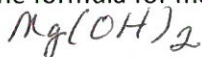
Same pH \rightarrow Look at pH scale table on Chem Wkst 19-3

22. NH_3 is a weak base.

23. What is the formula for phosphoric acid?

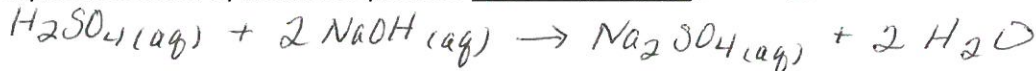


24. What is the formula for magnesium hydroxide?



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

26. Complete and balance the following reaction: sulfuric acid reacts with aqueous sodium hydroxide to produce ionic salt + water

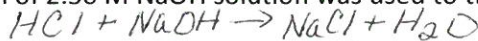


27. Neutralization reactions are used in acid-base titrations.

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

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

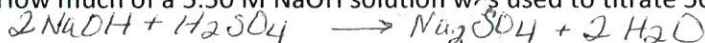
30. 20.0 ml of 2.50 M NaOH solution was used to titrate 40.0 ml of HCl. What is the [HCl]?



$$(2.50 \text{ M}) 20 \text{ mL} = x (40.0 \text{ mL})$$

$$x = 1.25 \text{ M HCl}$$

31. How much of a 5.50 M NaOH solution was used to titrate 50.0 ml of 4.0 M $\text{H}_2\text{SO}_4(\text{aq})$?



$$\text{H}_2\text{SO}_4 \quad 4.0 \text{ M} = \frac{x}{0.050 \text{ L}} \Rightarrow 0.20 \text{ moles H}_2\text{SO}_4 \quad \frac{2 \text{ mole NaOH}}{1 \text{ mole H}_2\text{SO}_4} = 0.4 \text{ moles NaOH} \quad \frac{\text{M} = \text{moles}}{\text{L}}$$

32. Name the acid HClO_3 chloric acid ?

33. Name the acid H_2S hydrosulfuric acid?

34. Name the acid H_2SO_3 sulfurous acid ?

35. $\text{HCN} + \text{H}_2\text{O}$ produces $\text{H}_3\text{O}^+ + \text{CN}^-$ Identify the acid and base in this reaction.

acid base

donates (+) receives (+)

$$\text{NaOH } 5.50 \text{ M} = \frac{0.4 \text{ moles}}{x}$$

$$\boxed{0.073 \text{ L}}$$

Please make sure you study your notes and you are able to **APPLY** the definitions and/or theory when presented with a question. This is an Honors class which means it is more than blatant memorization of terms, properties and theory. You must be able to **APPLY** the basic information.