

ACIDS AND BASES

Acids and Bases are **ELECTROLYTES**.

-can be molecular or ionic compounds

-break down into ions in solution and these ions conduct an electric current

weak electrolytes

vs

STRONG electrolytes

ionize only slightly

completely ionize

Weak electrolytes are called weak acids and weak bases.

Strong electrolytes are called strong acids and strong bases.

Properties of Acids

Properties of Bases

DEFINITIONS OF ACIDS AND BASES

	Arrhenius	Bronsted-Lowry
Acid	-any substance that releases H^+ ions as the only (+) ion in aqueous solutions	-any substance that donates a proton (H^+)
Base	-any substance that releases OH^- ions as the only (-) ion in aqueous solutions	-any substance that accepts a proton (H^+)

In water solutions, H^+ (protons) always attach to water molecules!!!!

CONJUGATE ACID-BASE PAIRS

According to Bronsted – Lowry theory, an acid-base reaction occurs when one substance donates its most loosely-held proton to another substance.

_____ - have only one hydrogen capable of being ionized.

_____ - have two or three hydrogens capable of being ionized..

STRENGTH OF ACIDS AND BASES

Strong acids and bases are those that _____ in water.

The strong acids are:

The strong bases are:

Weak acids and bases do not dissociate or ionize completely in aqueous solutions. The extent of dissociation or ionization varies with the acid/base.

If an equation represents the reaction of a strong acid or base, look for the arrow to point only to the right. The reaction is said to _____.

If an equation represents the reaction of a weak acid or base, look for a double arrow, meaning the reaction is _____.

Just because an acid or base is weak, does not mean that it is not soluble. Many weak acids and bases are very soluble in water. For example:

Ammonia (NH_3)

Acetic acid ($\text{HC}_2\text{H}_3\text{O}_2$)

Acetic acid is weak acid that is also called an _____ because it contains carbon. There are many organic acids. Amino acids are organic acids. They look similar to acetic acid in that they all contain a lot of carbon, hydrogen and oxygen.

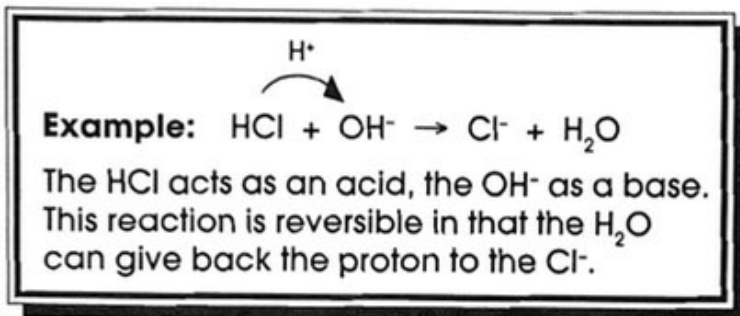
Write the dissociation/ionization equation for each of the following bases/acids:

1. nitric acid
2. sodium hydroxide
3. carbonic acid
4. barium hydroxide
5. phosphoric acid
6. iron (III) hydroxide

BRONSTED-LOWRY ACIDS AND BASES

Name _____

According to Bronsted-Lowry theory, an acid is a proton (H^+) donor, and a base is a proton acceptor.



Label the Bronsted-Lowry acids and bases in the following reactions and show the direction of proton transfer.

