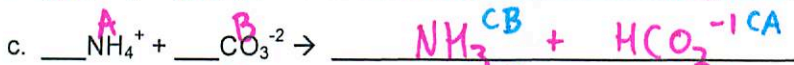
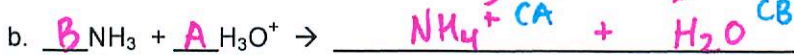
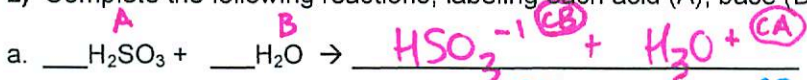


WS 20.2 Bronsted/Lowry Acid Base Theory

1) In BL theory, an acid donates a H⁺ (proton), and a base accepts a H⁺ (proton).

2) Complete the following reactions, labeling each acid (A), base (B), conjugate acid (CA) and conjugate base (CB)



3) Look at the following reaction: $\overset{\text{A}}{\text{HCO}_3^-} + \overset{\text{B}}{\text{OH}^-} \rightleftharpoons \overset{\text{CB}}{\text{CO}_3^{2-}} + \overset{\text{CA}}{\text{H}_2\text{O}}$

a) label A, B, CB, CA

b) Based on the acid strength of A vs. CA, is the forward or reverse reaction favored? Explain.

HCO_3^- is a stronger acid than H_2O \therefore Rxn proceeds \rightarrow (away from stronger acid)

4) Ammonia is amphoteric, meaning it can function as both an acid and a base. Complete these reactions making ammonia a base in reaction a, then an acid in reaction b.



Label A, B, CA, CB for both reactions.



H^- (hydride) is a very rare and unstable ion of hydrogen.

5) ACID RAIN CHEMISTRY - The gases that produce acid rain are often referred to as NO_x and SO_x .

a) List three examples of these gases: NO_2 SO_2 SO_3 NO

b) Coal burning power plants oxidize any sulfur (S) in the coal and burn it in air (O_2) to form SO_2 gas. The SO_2 is further oxidized by O_2 to form SO_3 . The SO_3 gas can combine with water in clouds to form sulfuric acid. Write three balanced equations to show this process.



c) Industrial plants making fertilizer and detergents release NO_x gases into the air. Write a balanced equation for converting $\text{N}_2\text{O}_5(g)$ into nitric acid by reacting it with water.



Fin!