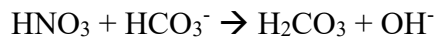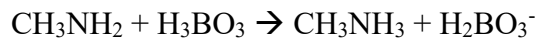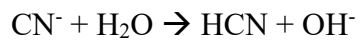# Acid-Base Equilibrium

1. Define the following terms:
a) Arrhenius Acid

b) Arrhenius Base

c) Bronsted-Lowry Acid

d) Bronsted-Lowry Base

2. Label the acid, base, and their conjugates in the following reactions:

$NH_3 + H_2O \rightarrow NH_4^+ + OH^-$

$CN^- + H_2O \rightarrow HCN + OH^-$

$CH_3NH_2 + H_3BO_3 \rightarrow CH_3NH_3 + H_2BO_3^-$

$HNO_3 + HCO_3^- \rightarrow H_2CO_3 + OH^-$

3. What is the formula for pH?

4. What is the formula for pOH? How do we find pH from it?

5. Calculate the pH of the following solutions:
a) 1.0 x 10^{-3} M HCl

b) 0.0234 M KOH

c) 6.2 x 10^{-5} M NaOH

6. Calculate the pH and pOH of a 7.80 x 10^{-6} M solution of Ca(OH)$_2$. Determine if the solution is acidic, basic, or neutral.

7. What is a polyprotic acid?

8. List the 7 strong acids:

9. To be considered strong, an acid or base has to: