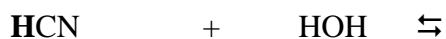
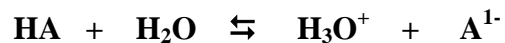


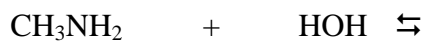
### Acids & Bases Worksheet #3

#### Hydrolysis Reactions:

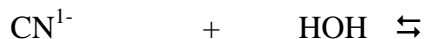
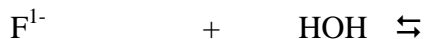
##### I. Weak Acids “Dump a proton onto water”



##### II. Weak Bases “Take a proton from water to make a weak acid” $\text{A}^{1-} + \text{H}_2\text{O} \rightleftharpoons \text{HA} + \text{OH}^{1-}$



##### III. Conjugate Base of a Weak Acid “One proton away from weak acid”



##### IV. Conjugate Acid of a Weak Base “Act like weak acids”



1. What is the pH of a 0.13 M HF solution?

$$pH = 2.04$$

2. What is the pH of a 1.4 M NH<sub>3</sub> solution?

$$pH = 11.70$$

3. Calculate the pH of a 0.89 M HC<sub>2</sub>H<sub>3</sub>O<sub>2</sub> solution.

$$pH = 2.40$$

4. What is the pH of a 0.50 M KF solution?

$$pH = 8.44$$

5. What is the pH of a 0.22 M solution of NaClO ?

*pH = 10.43*

6. What is the pH of a 0.034 M solution of KCN ?

*pH = 10.91*

7. What is the pH of a 0.65 M pyridine (C<sub>5</sub>H<sub>5</sub>N) solution?

*pH = 9.52*

8. What is the pH of a 0.56 M NH<sub>4</sub>Br solution?

*pH = 4.75*

9. Calculate the pH of a 0.79 M  $\text{NaC}_2\text{H}_3\text{O}_2$  solution.

$$pH = 9.32$$

10. What is the pH of a 0.16 M  $\text{NH}_3$  solution?

$$pH = 11.23$$

Slight Thinker!

11. A 0.020 M solution of a weak acid (HA) has a pH of 3.26.

(a) What is the  $K_a$  for this weak acid?

$$K_a = 1.6 \times 10^{-5}$$

(b) What percentage of this weak acid HA is ionized in this 0.020 M solution?

$$2.7\%$$