REVIEW QUESTIONS
Chapter 10

1. For each reaction shown below, determine the Brønsted-Lowry acid and base and their conjugates:

A) $H_3BO_3 + H_2O \rightleftharpoons H_3O^+ + H_2BO_3^-$

_____ _____ _____ _____

B) $HCO_3^- + OH^- \rightleftharpoons H_2O + CO_3^{2-}$

_____ _____ _____ _____

C) $CN^- + H_2O \rightleftharpoons HCN + OH^-$

_____ _____ _____ _____

2. Identify the Brønsted-Lowry acid for each base shown below:

a) NO_3^- _____ b) OH^- _____

c) SO_4^{2-} _____ d) CH_3O^- _____

e) O^{2-} _____ f) HPO_4^{2-} _____

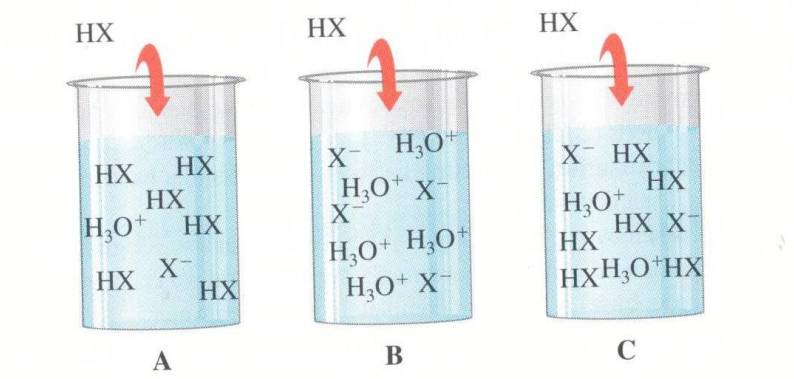
3. Identify the Brønsted-Lowry base for each acid shown below:

a) NH_3 _____ b) H_2SO_4 _____

c) HS^- _____ d) HClO _____

e) HNO_2 _____ f) H_2O _____

4. Each diagram below represents an acid solution with the formula HX. For each solution, determine if it is a strong acid or a weak acid.



5. Complete the missing information in the table below:

$[H_3O^+]$	$[OH^-]$	Acidic/Basic
1.0×10^{-12}		
3.8×10^{-4}		
	4.2×10^{-4}	
	1.0×10^{-9}	
6.5×10^{-8}		

6. Identify each of the substances below as **strong electrolyte**, **weak electrolyte** or **non-electrolyte**:

a) KCl _____ b) HNO_3 _____

c) CH_3OH _____ d) HF _____

e) H_3PO_4 _____

7. What are the $[H_3O^+]$ and $[OH^-]$ for a solution with the following pH values?

   a) 4.10

   b) 9.80

8. What is the pH of a solution that contains 1.54 g of HNO_3 in 0.500 L of solution?

9. What is the pH of a solution prepared by dissolving 1.00 g of $Ca(OH)_2$ in enough water to make 875 mL of solution?