**No Calculator Acid/Base 2**  Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Which of the following is the correct mathematical expression to use to calculate the

pH of a 0.15M aqueous Ba(OH)2 solution at 25°C?

1. pH = -log (0.15)
2. pH = -log (0.30)
3. pH = 14 - log(0.15)
4. pH = 14 + log(0.30)

2a. What is the concentration of a Ca(OH)2 solution with pH of 12.00?

2b. A student has 100.mL of NaOH with pH = 12. What would he or she need to do to change the pH to 11.00?

1. Diluting the solution to a total volume of 108.mL
2. Adding a small amount of NaOH
3. Diluting the solution to a total volume of 200.mL
4. Adding 100.mL of HCl
5. Diluting the solution to a total volume of 1000. mL

***Explain your choice:***

3. HF*(aq)* + H2O*(l)* ⇆ H3O+*(aq)* + F-*(aq)*

1. Write the expression of how to calculate the percent ionization for this weak acid.
2. For each option below, describe what effect, if any, adding the following would have on the percent ionization of a 10mL solution of 1.0M HF.

i. Adding 1.0ml of HCl

ii . Adding 1.0mL of distilled water

iii. Adding 1.0mL of 10.*M* HF

iv. Adding 1.0mL of 1.0M NaF*(aq)*

4. Find Ka for: H2X + 2H2O ⇆ X2- + 2H3O+

Given: H2X + H2O ⇆ HX- + H3O+ Ka1 = 2 x 10-4 and

HX- + H2O ⇆ X2- + H3O+ Ka2  = 1.5 x 10-8