**SOIL 4234 Laboratory #1**

**Chemistry Review Exercise (10 points)**

**Due Wednesday, August 28th (next week) at the beginning of lab**

 Student

 Lab

 TA

# **Show All Calculations and Use Appropriate Labels**

1. (1.5 pts) Fill in the table for each of the compounds or ions.

### Formula Name Molecular weight

# 1. KCl potassium chloride 74.5 g/mole

2.CaCl2

3. barium carbonate

4. NH4NO3

5. ferrous chloride \_\_\_\_\_\_\_\_

1. (1 pt) What is the percent N in material 4 from the table above?
2. (1 pt) If you added 60 lbs. of N in the form of NH3 to an acre of soil, how many H+ ions per acre did you add?
3. (1 pt) What is the difference between Molarity and Normality and give the units for each?
4. (0.5 pt) Average the following set of pH values using the pH definition:

pH: 6.2

 6.5

 5.1

 Average:

1. (1 pt) You experimentally determine that 2 g of soil contains 20 μmol of available P. How many lbs of available P per acre is in your soil?
2. (1.5 pt) If a 20 mL solution of sodium hydroxide (NaOH) is titrated to the equivalence point with 5 mL of 2 M sulfuric acid (H2SO4), what was the molarity of the NaOH solution?

2 NaOH + H2SO4 → Na2SO4

1. (1 pt) How many grams of calcium chloride would you need to make 1 L of solution containing 5 ppm calcium (Ca)?
2. (1.5 pts) You need to make a 1 L solution with final concentrations 12 *M* N, 3 *M* P, and 5 *M* K. Calculate how many grams of the following materials you would need to make this solution.

Materials: (NH4)2SO4, NaH2PO4, and KCl