CH 221
Sample Quiz #6 Name: _____ Lab Section: _____

Be sure to show all work, use the correct number of significant figures, circle final answers and use correct units in all problems.

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1. Fill in the missing stoichiometric coefficients. **Blank entries** will be **considered** to be **zero**. All stoichiometric coefficients must be whole numbers. (6 points)

___ $Pb(NO_3)_2(aq)$ + ___ $LiCl(aq)$ → ___ $PbCl_2(s)$ + ___ $LiNO_3(aq)$

___ $C_6H_6(l)$ + ___ $O_2(g)$ → ___ $CO_2(g)$ + ___ $H_2O(g)$

___ $N_2(g)$ + ___ $H_2(g)$ → ___ $NH_3(g)$

2. Consider a 0.0180 M $(NH_4)_2SO_4$ (ammonium sulfate) aqueous solution. (6 points)

   a. What is the concentration (M) of ammonium in the solution?

   b. How many mL of the ammonium sulfate solution are needed to deliver $6.30 \times 10^{-4}$ mol of ammonium sulfate?

   c. If you add 400. mL of water to 0.0500 L of 0.0180 M $(NH_4)_2SO_4$, what will be the diluted solution concentration?

3. Consider ethanol, $C_2H_6O$ (drinking alcohol): (4 points)

   a. What is the molar mass (g/mol) of ethanol to 0.01 g/mol?

   b. Determine the %C, %H and %O in ethanol.

4. For the species HCl, NaOH, HClO, $NH_3$ and water: (4 points)

   a. Which of the above are acids? List them here:

   a. Which of the above are bases? List them here:

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***Answers***
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1. **1, 2, 1, 2**
   **2, 15, 12, 6**
   **1. 3. 2**

2. **0.0360 M**
   **35.0 mL**
   **0.00200 M**

3. **46.08 g/mol**
   **52.13% C, 34.72% O, 13.2% H**

4. **HCl, HClO**
   **NaOH, $NH_3$**