Review Sheet for CHM 130LL Final

Review each of the experiments you completed so that you remember the purpose of each lab, how you carried it out, and what calculations were involved. The following list may be helpful as you study. All page numbers refer to the lab manual.

Skills

Identify any piece of glassware or equipment you have used in lab. (On the CHM130 website, under Supplementary Materials see Lab Equipment.)

Correctly read a thermometer, buret, balance, graduated cylinder, ruler or any other instrument using the appropriate level of precision (*i.e.*, reporting the measurement to one more decimal place than the smallest division on the instrument).

Use a graph generated by experimental results to find a missing value. For example, using a graph of mass v. volume for a substance and the mass of a sample of that substance, you should be able to find the volume of the sample. (Refer to the Density lab for an example; see "Graphing" (on the web site under Supplementary Materials for more information)

Be familiar with safety guidelines for the lab. (See under Experiments the Safety page)

Be familiar with chemical waste disposal procedures for the lab.

Memorize oxidation numbers for selected elements (Table 3, p. 4 of Nomenclature experiment) and polyatomic ions (p. 6 of Nomenclature), and be able to name chemical compounds using the rules of nomenclature presented in lab (p. Nomenclature, pp 7-10).

Balance any chemical reaction. (Reaction Types, p 1)

Given a reaction, classify it as double replacement, single replacement, combustion, combination, or decomposition. (Reaction Types, pp 4-6)

Be able to write a balanced chemical reaction in molecular format, total ionic format, and and net ionic format. (Double Replacement, pp 2-3)

Given a single replacement reaction, identify which species is being oxidized and which species is being reduced (Single Replacement, pp 1-2)

Given data from a set of single replacement reactions, be able to arrange elements into an activity series.

Be familiar with the separation methods you used in *Separation of a Mixture*; be able to propose a plan for separating the components of a similar mixture.

Calculations

Be able apply rules involving significant figures for all calculations.

Experimental error (see Specific Heat, p. 2)

Percent composition of a compound. (see Decomposition, p 1)

Be able to carry out calculations involving specific heat using the formula $Q = mc\Delta T$. Review the calculations carried out in the Specific Heat lab.

Given coordinates for two points on a line, find the slope of the line. (Under Supplimentary Materials, see Graphing, p 1)

Given mass and volume of a sample of a pure substance, calculate its density.

Calculate the volume of an irregularly shaped object (for example, a metal washer) using the displacement method.

Using the mass of a reaction container (for example, a crucible) before and after an experiment, calculate the mass of a product. (For example, you did this in *Decomposition of Potassium Chlorate* and *Water in Hydrates*.)

Be able to prepare a dilute solution from a concentrated solution, given sufficient information about molarities and volumes of the two. ($M_1V_1 = M_2V_2$)

Given mass or moles of a compound and total volume of solution, calculate molarity of the solution.

Given the concentration of a solution of acid or base and data from a titration, be able to calculate the concentration of an unknown base or acid.

Miscellaneous

What is an indicator used for?

What is a catalyst?