Chem100 Lab Midterm-Quiz Review Guideline @ MMC

Be sure you understand how to perform all calculations for the experiments.
Know the objective and lesson of each experiment and activity.
Be able to write a conclusion based on the results of each experiment.

ACTIVITY

Techniques: Safety

-Be sure you know about the safety procedure and precautions in lab
-Understand policies for laboratory conduct.
-Syllabus information can also be included in this part.

Lab01|Activity 01: Math Basic (Using Exponential Notation and Significant Figures)

-Know how to how to convert a number to exponential (scientific notation) and vice versa.
- Know how to add / subtract and multiply / divide using exponential notation.
-Know the difference between precision and accuracy and know the rules of rounding off.

Lab06|Activity 02: Chem Nomenclature (Naming & chemical formulas)

-Know how to determine the oxidation state of metal in a formula.
-Know how to identify type of compound: Type I, Type II or Type III
-Given the chemical name, know how to write the chemical formula
-Given the chemical formula, know how to write the chemical name
-Know how to identify and name all oxyions from the hypo-ite to the per-ite

Lab07|Activity 03: Building Molecular Model (Lewis Symbols and Lewis Structure)

-Know how to determine the valence electrons for an atom or ion
-Know how to draw the Lewis of chemical specie.
-Understand how to derive the number of electron domains
-Know how to derive the molecular geometry

EXPERIMENT

Lab02|Expt 01: Penny Experiment and the Scientific Method

-Know the steps in the Scientific Method and be able to identify its parts
-Know how the penny experiment demonstrated the utilization of the scientific method.
-Know the out come of the penny experiment and the evidence that to that out come.

Lab03|Expt 02: Introducing Mass and Volume Measurements

-Know how to calculate the density of an object.
-Know how to use equipment in lab such as hot plate, balance and Bunsen burner.
-Know how to read a measurement to the correct number of significant figures based on the precision of the device.
-Know the rules of significant figures when making a conversion from a measurement.

Lab04|Expt 03: Density Solubility and Miscibility

- Know how to determine whether a solute is soluble in a given solvent.
- Know whether a mixture of liquids will be miscible or immiscible.

Lab05|Expt 04: Separating a Ternary Mixture

-Know how to classify matter and their properties.
-Know about what properties of a substance is exploited in order to separate it from another component.
-Know how to describe different techniques of separation by physical or chemical method.

Chem100 Lab Final-Quiz Review Guideline

(Second-Half will also include these topics, but the final exam is comprehensive)

Lab08|Activity 04: Writing and Balancing chemical equations.

-Know how to categorize a chemical reaction, i.e., combination, decomposition, single displacement, combustion, neutralization and double displacement.
-Know what the different symbols mean. i.e., (g), (s), →
-Know how to solve a chemical reaction given formulas or names.
-Know how to solve a double displacement reaction and to write it in the form of a molecular equation, complete ionic equation and a net ionic equation. Also know how to recognize spectator ions.
-Know how to use Avogadro's number to interconvert between moles to atoms (molecules).
-Know how to use molar mass to interconvert from mole to mass.
-Know how to use a balance equation to interconvert from one compound in a chemical reaction to another compound.
-Know how to use stoichiometry concept to convert grams of one compound to grams of another compound.
-Know how to use stoichiometry concept to convert from grams of one compound to molecules (or atoms) in another compound.

Lab09|Expt 05: Counting by Weighing

•Know how to use the mole concept in determining the number of molecules or atoms.
•Know how to count molecules using the mass of an individual molecule, (counting by weighing).
•Know how to identify the chemical formula using the concept of counting by weighing.
•Know how to determine the number of atoms in a given mass of a compound.

Lab10|Expt 06: Observing Sign of Chemical Reaction

•Know what the signs are that a chemical reaction has occurred
•Know the chemical formula for common chemicals for this experiment.
•Know the appearance of the chemicals used in these reactions.
•Know how to write and balance all the chemical equation of this experiment based on the words or formulas.
•Know the fundamental differences between each chemical reaction studied in this experiment.

Lab11|Expt 07: Gas Law Exercises

- Know the concepts of KMT
- Know how to apply the four gas law equations
- Know how to apply the combine gas law equation
- Know how to apply the ideal gas law equation
- Know concept of STP and its application
- Calculate the molar mass of a gas using the ideal gas law equation
- Calculate the density of a gas using the ideal gas law equation
- Know how to apply Dalton's Law of Partial pressure

Lab12|Expt 08: Concentration Calculations

- Know how to calculate molarity of a solution given the moles or mass of the solute and the volume of solution.
- Know how to calculate concentration in terms of percent, pph, ppm and ppb
- Know how to calculate and describe a solution from a stock solution.
- Know how to apply the method of titration analysis to determine the concentration of an analyte.
- Know how to calculate the concentration of a salt solution based on the mass of solute and volume of solvent.

•Know how to calculate the molarity, the by m/m, m/v, v/v concentration in %, ppm and ppb and vice-versa.

Lab13|Expt 08: Titration of Vinegar

•Know how to determine whether a solution is acidic or basic.
•Know how to calculate the pH or [H_3O^+] of a solution.
•Know how to use indicators to determine whether the acidity of a solution.
•Know how to describe the use of the titration process and technique.
•Know the difference between equivalent point and end point.
•Know how to calculate the moles of acid or base from the concentration and volume.
•Know how to calculate the % concentration of acid or base from titration data.

Lastly-

- make sure you know how to do all the calculations that was required for each experiment.
- make sure you remember what happened for certain step in all the experiments that was completed in this course.