

## Exam 1 Review

### Chapter 1

- Understand following terms:
  - Hypothesis
  - Theory
  - Law
  - Matter
  - Substance
  - Compound
  - Qualitative
  - Quantitative
  - Mixture
  - Homogeneous
  - Heterogeneous
  - Atom
  - Molecule
  - Intensive Property
  - Extensive Property
  - Macroscopic
  - Microscopic
  - Precision
  - Accuracy
  - physical property
  - Chemical Property
- Dimensional Analysis---It's all about cancelling out units until you end up with what you need!!
  - You need to know the conversion factors for time
  - Be able to convert between English system and the Metric system when given the conversion factor.
  - Know the conversions in the Metric system. Mega, kilo, centi, mili, micro, nano and pico
  - Density! Be able to calculate it and to use it!
- Scientific Notation and Significant Figures
  - Be able to put answers in proper scientific notation when asked.
  - Always use significant figures. REMEMBER TO DO THE MATH FIRST.
  - Addition/ Subtraction: The answer has the same number of sig figs as the starting value with the fewest numbers passed the decimal point.
  - Multiplication/ Division: The answer has the same number of sig figs as the starting value with the fewest number of sig figs.
  - What is the accuracy of measurements? How many significant figures do you use when using a pipet or a graduated cylinder?
  - An exact number is a conversion factor or a number of samples
  - Be able to report the correct number of significant figures when taking a measurement
- Know the properties of Solids, Liquids and Gases

### Chapter 2 except 2.5

- Make up of an atom
  - how are protons/ neutrons/ electrons related?
  - What is an isotope?
  - What is an Ion?
- Writing and Interpreting atomic symbols
  - Be able to determine the number of protons and Neutrons and electrons from the atomic symbol for atoms and ions
  - Know what the elemental symbol, atomic number and mass number are in the formula.  
$${}^A_ZX^C$$
- Be able to calculate average atomic mass. Your answer should have the same significant figures and the mass with the least number of significant figures or you will be told how many significant figures to report
- Be able to use dimensional analysis analysis with avogadro's number and molar mass

### Chapter 3.1-3.6

- Be able to read the electromagnetic spectrum (check the units on the spectrum given)
- Know the different forms of Energy
- Know the law of conservation of Energy
- Be able to use the equation  $C=\lambda \nu$
- Be able to calculate Energy  $E = h\nu$  or  $E = hc/\lambda$