

CH 221 Chapter Two Part 1 Study Guide

- Explain the historical development of the atomic theory and identify some of the key scientists who made important contributions to this field (Democritus, Dalton, Curie, Rutherford, Thompson, Millikan, Mendeleev, etc.)
- Know the differences between and identities of alpha, beta and gamma radioactive particles.
- Describe electrons, protons and neutrons and the general structure of the atom.
- Understand the atomic mass unit (amu) and elementary charge (e).
- Be able to calculate the atomic mass of an element from isotopic abundances.
- Define isotope and be able to give the mass number and number of neutrons for a specific isotope.
- Explain the difference between atomic number and atomic mass for an element. Be able to find this information from a periodic table.
- Memorize the value of Avogadro's Number to at least four significant figures ($6.022 * 10^{23}$).
- Explain the concept of the mole. Be able to find the mass per mole from the periodic table.
- Know how mass per mole relates to mass per atom on the periodic table and know how to use this in calculations.
- Understand how to convert from moles of an element to mass of an element and from the mass of an element to moles of an element.
- Be able to identify the following groups from the periodic table: metals, nonmetals, metalloids, alkali, alkaline earths, pnicogens, chalcogens, halogens, noble gases, transition metals, lanthanides and actinides.
- Use the periodic table to predict properties of elements.
- Be able to solve and understand the assigned problems in problem set #2.