

## College Prep Chemistry of the Earth System

### Assignment 3H

20 Points

#### The Electron and Ions

*Answer the following questions*

1. Based on the Rutherford and Bohr models of the atom, what is the location and use of the orbits and orbitals
2. What is the role of the inner and valence (*outer*)  $e^-$  within the atom?
3. Based on orbitals, explain the following:
  - a. The opposite direction of movement of 2  $e^-$  within a single orbital
  - b. How  $e^-$  fill within a group of orbitals in a level of the atom
4. For the following atoms determine the number of valence  $e^-$  (*group A elements*)
  - a. Be
  - b. K
  - c. Al
  - d. P
  - e. S
  - f. Si
  - g. Ar
  - h. F
5. Based on the chart from the noteset, what are the possible charges for the following transition metals?
  - a. V
  - b. Cu
  - c. Fe
  - d. Zn