**Unit 3 Review Sheet**

 I. Electrons and Light

 1. There are two equations that we have used concerning light and

 energy:

  **E = hv c = λv**

 (1.) What does E stand for?

 (2.) What does h stand for and what is it's value?

 (3.) What does v stand for?

 (4.) What does c stand for and what is it's value?

 (5.) What does λ stand for?

 2. Sample problems:

 (1.) What is the wavelength of light with the frequency of 1.81 × 1014

 Hz?

 (2.) What is the frequency of light with the wavelength 6.80 x 10-10 m?

 (3.) What is the energy of light with the frequency 2.92 x 1015 Hz?

 (4.) A certain light has the wavelength 9.23 x 10-10 m, what is the

 frequency?

 (5.) What is the energy of light with a frequency of 1.34 x 1011 Hz?

 II. Electron configurations

 -- What does the Aufbau principle state? Hund’s Rule? Pauli Exclusion

 principle?

 Assign electron configurations to the following elements:

 Ca\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 B \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 C \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Fe\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 U \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 W \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Cl \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Rb\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Cu\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Sr\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Determine the noble gas abbreviated electron configurations for the

 following elements and draw their orbital diagrams. How many unpaired

 electrons does each element have?

 F \_\_\_\_\_\_\_\_\_\_\_\_\_\_ O \_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Na\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Be\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Mg\_\_\_\_\_\_\_\_\_\_\_\_\_\_ N \_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Al\_\_\_\_\_\_\_\_\_\_\_\_\_\_ P\_\_\_\_\_\_\_\_\_\_\_\_\_\_

III. Periodic Trends

 **\*\*\*Be able to explain each trend in terms of effective nuclear charge**

 **and atomic radius as appropriate!!\*\***

 1. What is the periodic trend for atomic radius?

 Sample Questions:

 Which of the following has the **largest** atomic radius?

 K or Ca N or F Al or Cl

 Li or K Ca or Ba F or I

 V or Ni Zr or Cd Mn or Re

 B or In Rb or Te Li or Cs

 2. What is the periodic trend for ionization energy?

 Which of the following has the **largest** ionization energy?

 Li or Cs K or V B or Ga

 Cs or Po F or I B or F

 Be or Ba C or Sn N or Sb

 Mo or Ag Al or Cl Li or F

 3. What is the periodic trend for electronegativity?

 Which of the following has the **smallest** ionization energy?

 Ca or K F or N Cl or Al

 K or Li Ba or Ca I or F

 Ni or V Cd or Zr Mn or Re

 In or B Te or Rb Cs or Li