Unit 2 Mastery Chapter 4 and 5

1. A certain radio wave has a wavelength of 7 inches.

a. Convert the wavelength of this radio wave into meters. (1 meter = 39.37 inches)

b. Find the frequency of this radio wave.

c. Find the energy of this wave.

2. A certain wave on the border between microwaves and infrared waves has a frequency of 2×10^{12} Hz.

a. Calculate the wavelength of this wave in meters.

b. What is the energy of this wave?

4. Why do we one see 3-4 color bands of light when Hydrogen gas is excited in a gas tube? What is causing these specifics bands of light to be produced? Use a diagram of the atom to explain your answer.

5. Write the **full** and **noble** gas configurations of the following elements. INCLUDE an orbital diagram of the **valence** electrons:

a. Silicon

b. Selenium

c. Strontium

6. What is the highest energy level occupied in the Iodine atom? How many subshells are occupied? How many valence electrons are present?

7. What is the charge of all halogens? Are these cations or anions? Do they gain or lose electrons?

8. Which element has a greater ionization energy?

a. Na or Rb b. Si or Cl c. F or Cs

9. Which element is more electronegative?

a. K or Rb b. P or Bi c. F or I d. N or O

10. Which element is larger?

a. O or F b. Be or Sr d. Br or Zn

11. Do the following elements form anions or cations (give the charge you think they will carry)

a. Mg _____ b. Rb _____ c. S _____ d. Xe_____