Honors Chemistry: Homework Set 5-3

1. Using only a periodic table, determine the atom in each pair that has the larger atomic radius.

   a. Al or B
   b. Na or Al
   c. S or O
   d. O or F
   e. Br or Cl
   f. Mg or Ca

2. Rank the following elements by *increasing* atomic radius: carbon, aluminum, oxygen, potassium.

3. What is ionization energy?

4. Using only a periodic table, determine the atom in each pair that has the greater ionization energy.

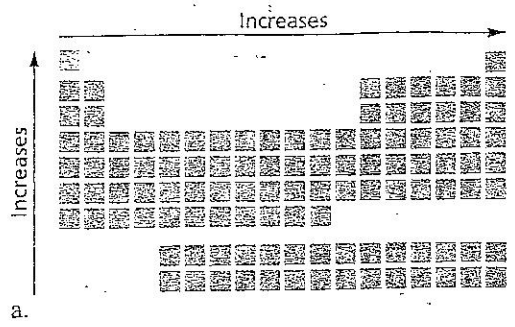
   a. Li or Be
   b. Ca or Ba
   c. Na or K
   d. P or Ar
   e. Cl or Si
   f. Li or K

5. Arrange the following elements in order of *increasing* ionization energies: Li, O, C, K, Ne, and F.

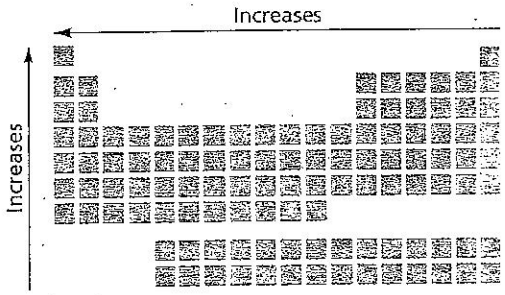
6. Define electronegativity.

7. Identify which trends in the diagrams below describe atomic radius, ionization energy, and electronegativity.

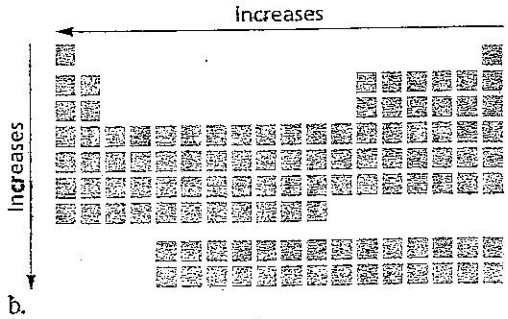
   atomic radius =_____ ionization energy =_____ electronegativity =_____



a.



c.



b.

8. Using only a periodic table, determine the atom in each pair that has the greater electronegativity.

a. Ca or Ga
b. Br or As
c. Li or O
d. Ba or Sr
e. Cl or S
f. O or S

9. Rank the following elements by increasing electronegativity: sulfur, oxygen, neon, aluminum.

10. You have been given a list of code letters and clues that correspond to the main group elements in the first four periods of the periodic table. Place each code letter in its proper space in the partial periodic table below.

CODE LETTER	CLUE	CODE LETTER	CLUE
W	noble gas with largest atom size.	I	has the smallest ionization energy in its group.
P	an alkali metal.	C	halogen found in period 3
U	electron configuration ends $2p^5$.	V	has one more proton in its nucleus than U.
D	period three element whose configuration ends p^3.	H	has the largest first ionization energy in its group.
J	an alkaline earth metal.	G	noble gas with highest ionization energy.
T	electron configuration ends $4p^4$.	K	group 2 element with lowest ionization energy.
A	electron configuration ends $2p^2$.	E	largest atom found in period 3.
R	has an atomic number one less than A.	Q	group 2element that has an atomic weight greater than that of J and less than that of K.
O	has an atomic number one more than A.	N	electron configuration end 3 p^6.
S	has 18 more protons in its nucleus than D.	Z	element that has an atomic number of 19.
F	element whose atoms contain one proton.	Y	largest atom found in group 13.
L	element found in the same group as A and I.	M	element that has an atomic number one greater than D.
B	element whose atoms have 13 protons in the nucleus.	X	halogen with lowest ionization energy.