G11 Chemistry: Class 3 Homework

MULTIPLE CHOICE: Circle the correct answer.

1. Which of the atoms listed below has the smallest radius?
   A) Al
   B) P
   C) As
   D) Te
   E) Na

2. Which of the atoms listed below has the largest radius?
   A) Cl
   B) I
   C) P
   D) Sb
   E) Se

3. Which of the elements listed below has the greatest atomic radius?
   A) B
   B) Al
   C) S
   D) P
   E) Si

4. Arrange the following ions in order of increasing ionic radius: K^+, P^{3-}, S^{2-}, Cl^-.
increasing radius →
   A) $K^+ < Cl^- < S^{2-} < P^{3-}$
   B) $K^+ < P^{3-} < S^{2-} < Cl^-$
   C) $P^{3-} < S^{2-} < Cl^- < K^+$
   D) $Cl^- < S^{2-} < P^{3-} < K^+$
   E) $Cl^- < S^{2-} < K^+ < P^{3-}$

5. Arrange the following ions in order of decreasing ionic radius: Al^{3+}, Mg^{2+}, Na^+, O^{2-}.
decreasing radius →
   A) $Al^{3+} > Mg^{2+} > O^{2-} > Na^+$
   B) $Al^{3+} > Mg^{2+} > Na^+ > O^{2-}$
   C) $Na^+ > Mg^{2+} > Al^{3+} > O^{2-}$
   D) $O^{2-} > Al^{3+} > Mg^{2+} > Na^+$
   E) $O^{2-} > Na^+ > Mg^{2+} > Al^{3+}$

6. Which of the elements listed below has the highest first ionization energy?
   A) He
   B) Ne
   C) Ar
   D) Kr
   E) Xe

7. Which of the elements listed below has the smallest first ionization energy?
   A) C
   B) Ge
   C) P
   D) O
   E) Se

8. Which of the following elements has the smallest first ionization energy?
   A) Cl
   B) Na
   C) Be
   D) K
   E) As

9. Which of the following elements has the greatest electron affinity (largest negative value)?
   A) Mg
   B) Al
   C) Si
   D) P
   E) S

10. The electron affinity of fluorine is essentially equal to
   A) the negative of the ionization energy F.
   B) the ionization energy F^-.
   C) the negative of the ionization energy F^-.
   D) the ionization energy Ne.
   E) the negative of the ionization energy Ne.

SHORT ANSWER: Answer the following questions.

11. Order the following elements by increasing atomic radius:
   a. Al, Ca, F, K, S

   b. K, Fe, Ar, Br, Kr

12. Order the following element by increasing ionization energy:
    a. O, Be, F, C, B

    b. Na, Al, P, S, Cl

13. Order the following elements by increasing electronegativity:
    a. Li, N, K, Ar, Be

    b. Na, Al, P, S, Cl

14. Order the following elements by increasing electron affinity:
    a. At, I, Br, Cl

    b. Po, Te, Se, S

15. Fill in the blanks:

    a. As you move up and to the right on the periodic table, atomic radius _____ and electronegativity _____.

    b. As you move from the top to the bottom of the periodic table, ionization energy _____ and electronegativity _____.

16. Arrange the following in order of increasing:

	Atomic Radius	**Ionization Energy**	**Electron Affinity**	**Electronegativity**
Na, Mg, Al				
F, Cl, Br				
Sn, P, Br				
Al, S, Ne				
C, Al, K				