1. What is atomic radius?

2. What is the group trend for atomic radius? What is the period trend for atomic radius?

3. Circle the atom in each pair that has the smaller atomic radius.

i) Na or Mg iii) C or O v) F or Al

ii) Na or Li iv) O or S vi) Mg or Cs

4. Circle the atom in each pair that has the larger atomic radius.

i) Cl or I iii) Na or N v) Ca or O

ii) P or Cl iv) He or Fr vi) K or Br

5. Circle the atom in each group that has the largest atomic radius.

i) S, F, Al, or C

ii) Cl, F, P, or He

iii) N, Si, Mg, or Cs

6. Circle the atom in each group that has the smallest atomic radius.

i) S, F, Al, or C

ii) Cl, F, P, or He

iii) N, Si, Mg, or Cs

7. Rank the following elements in order of decreasing atomic radius: Si, Ca, F, S, K

8. Rank the following elements in order of increasing atomic radius: O, B, Mg, Sr, Al

9. Rank the following elements in order of decreasing atomic radius: P, Ne, N, Na, Rb

10. Which has the more dramatic effect on atomic radius: the nuclear charge, or the number of occupied energy levels? Explain. (Refer to Figure 11.36 on p. 350 of your textbook)

11. Would you expect a Cl- ion to be larger or smaller in radius than an Mg2+ ion? Justify your answer using coulombic attractions.

12. Explain why an aluminum ion (Al3+) has a smaller radius than a sodium ion (Na+).

13. a) Which of the following cations is unlikely to form: Sr2+, Al3+, K2+

b) Which of the following anions is unlikely to form: I-, Se3-, N3-

14. The two ions K+ and Ca2+ each have 18 electrons surrounding the nucleus. Which would you expect to have the smaller radius? Why?

15. List the following species in order of DECREASING radius: Cs+,Te2-, Ba2+, I-, Xe