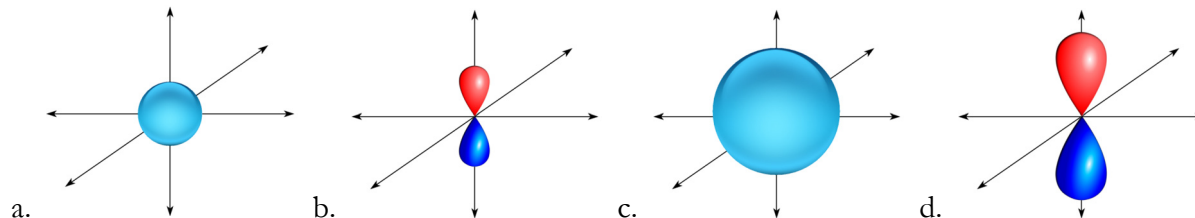


Extra Problems for Chapter 4

1. One of the following orbitals represents a 1s orbital, and another represents a 2s orbital. Indicate which one represents each.



2. Give the ground state electron configuration for the following elements:

- a. beryllium b. carbon c. argon d. selenium (Se)

3. Give the abbreviated ground state electron configuration for Indium (In).

4. What is wrong with the following electron configurations?

- a. $1s^2 2s^2 2p^6 3s^1 3p^6$ b. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 4d^{10} 4p^6$ c. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 5p^2$

5. What element has the electron configuration $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^4$?

6. Which of the following elements should have very similar chemical behaviors?

- a. K b. Se c. Si d. Tl e. S

7. Draw the Lewis structure for phosphorus.

8. Draw the Lewis structure for the ion that nitrogen forms in ionic compounds. What is the name of that ion?

9. Draw the Lewis structure for the ion that calcium forms in ionic compounds. What is the name of that ion?

10. What are the chemical formulas of the compounds formed between the following elements?

- a. calcium and chlorine b. lithium and sulfur c. aluminum and Se d. Sr and Se

11. What is the chemical formula of lithium phosphide?

12. Nitrogen and potassium react to form a compound. Is it an ionic compound?

13. What is the chemical formula of chromium (III) oxide? (Chromium's chemical symbol is Cr.)

14. Iron (Fe) can take on more than one charge in an ionic compound. What is the name of FeCl_4 ?

15. Which of the following compounds, when dissolved in water, is likely to produce a solution that conducts electricity?

- a. NO_2 b. MgO_2H_2 c. $\text{C}_6\text{H}_{12}\text{O}_6$ d. $\text{C}_3\text{H}_6\text{O}$