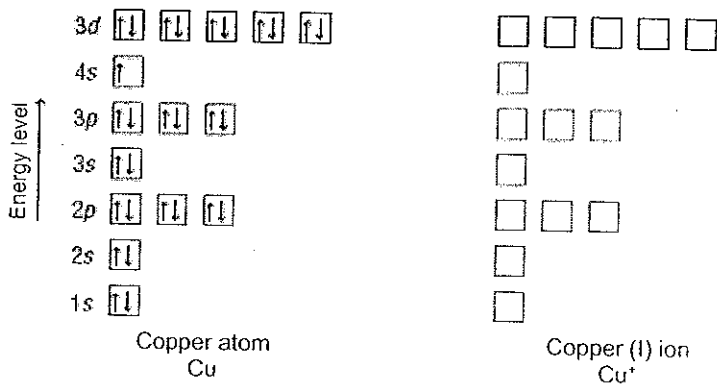


13. What is the electron configuration called that has 18 electrons in the outer energy level and all of the orbitals filled?

14. Write the electron configuration for zinc.

15. Fill in the electron configuration diagram for the copper(I) ion.



Formation of Anions

16. Atoms of most nonmetallic elements achieve noble-gas electron configurations by gaining electrons to become _____, or negatively charged ions.

17. What property of nonmetallic elements makes them more likely to gain electrons than lose electrons?

18. Is the following sentence true or false? Elements of the halogen family lose one electron to become halide ions. _____

19. How many electrons will each element gain in forming an ion?

a. nitrogen _____

b. oxygen _____

c. sulfur _____

d. bromine _____

20. Write the symbol and electron configuration for each ion from Question 19, and name the noble gas with the same configuration.

a. nitride _____

b. oxide _____

c. sulfide _____

d. bromide _____

3. Is the following sentence true or false? The group number of a representative element in the periodic table is related to the number of valence electrons it has.

4. What is an electron dot structure?

5. Draw the electron dot structure for each of the following atoms.

a. argon _____

b. calcium _____

c. iodine _____

6. What is the octet rule?

7. Metallic atoms tend to _____ valence electrons to produce a positively charged ion. Most nonmetallic atoms achieve a complete octet by gaining or _____ electrons.

Formation of Cations

8. Write the electron configurations for these metals, and circle the electrons lost when each metal forms a cation.

a. Mg _____

b. Al _____

c. K _____

Match the noble gas with its electron configuration.

_____ 9. argon

a. $1s^2$

_____ 10. helium

b. $1s^2 2s^2 2p^6$

_____ 11. neon

c. $1s^2 2s^2 2p^6 3s^2 3p^6$

_____ 12. krypton

d. $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4p^6$