# Electron Configuration Worksheet

**1) What is meant by electron configuration?**

**2) Why is there a distinct electron arrangement for each atom?**

**3) Electrons within atoms seek out the highest energy levels (True or False).**

**4) What does the Aufbau principal state?**

**5) In which principal energy level do the different sublevels begin to overlap?**

**6) (a) One of the rules requires placing as many single electrons in _____.**

**(b) In this way, electron-electron repulsion is _____.**

**7) What is Hund's rule?**

**8) What is Pauli's exclusion principle?**

**9) How is an unoccupied orbital represented in orbital notation?**

**10) Show the orbital notation for the element C.**

**11) How are electrons represented in an electron configuration?**

**12) Write the electron configuration for the element C.**

**13) Electron dot notation shows only _____.**

**14) How does one recognize the highest occupied energy level?**

**15) What are inner shell electrons?**

**16) Atoms which have the s and p sublevels of their highest main energy level filled with eight electrons are said to have a(n) _____.**

**17) What is a noble gas configuration?**

# Solutions

**1)** **The arrangement of electrons in atoms.**

**2)** **Atoms of different elements have a different number of electrons.**

**3)** **False.**

**4)** **Electrons occupy the lowest energy orbital that can receive it.**

**5)** **The third.**

**6)** **(a)** **separate orbitals in the same sublevel.**

**(b)** **minimized and electron arrangements have a lower energy.**

**7)** **Orbitals of equal energy are each occupied by one electron before any one orbital is occupied by a second electron and all electrons in singly occupied orbitals must have the same spin.**

**8)** **No two electrons in the same atom can have the same set of four quantum numbers.**

**9)** **By a line _____.**

**10)**

| ↑↓ | ↑↓ | ↑ | ↑ | ____ |
|---|---|---|---|---|
| **1s** | **2s** | **$2p_x$** | **$2p_y$** | **$2p_z$** |

**11)** **By adding superscripts to the sublevel designation.**

**12)** **$1s^2 2s^2 2p^2$ or $1s^2 2s^2 2p_x^1 2p_y^1$.**

**13)** **Electrons in highest or outermost energy level (valence electrons).**

**14)** **Electrons containing main energy levels with the highest principal quantum number.**

**15)** **Electrons not found in the highest occupied energy level (core electrons).**

**16)** **An octet of electrons.**

**17)** **An outer principal energy level fully occupied by eight electrons.**