

Assessment

Arrangement of Electrons in Atoms**Section Quiz: Electron Configurations**

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

- _____ 1. The statement that no two electrons in the same atom can have the same four quantum numbers is a restatement of
- Bohr's law.
 - Hund's rule.
 - the Aufbau principle.
 - the Pauli exclusion principle.
- _____ 2. According to the Aufbau principle, which of the following sublevels is lowest in energy?
- $3d$
 - $4s$
 - $4p$
 - $5s$
- _____ 3. In a ground-state hydrogen atom in which orbital is the electron?
- $1s$
 - $2s$
 - $2p$
 - $3s$
- _____ 4. How many electrons are present in an atom of calcium that has the electron configuration $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$?
- 6
 - 16
 - 20
 - 36
- _____ 5. The ground-state electron configuration of neon is $1s^2 2s^2 2p^6$. In this arrangement, how many of neon's p orbitals are completely filled?
- 1
 - 2
 - 3
 - 6

Section Quiz, *continued*

- _____ 6. Oxygen has an electron configuration of $1s^2 2s^2 2p^4$. In this arrangement, how many inner-shell electrons does oxygen have?
- 1
 - 2
 - 4
 - 8
- _____ 7. Which of the following is a noble gas?
- carbon
 - oxygen
 - sodium
 - neon
- _____ 8. The noble-gas notation for the electron configuration of bromine is $[\text{Ar}] 3d^{10} 4s^2 4p^5$. How many unpaired electrons are there in an atom of bromine in the ground state?
- 0
 - 1
 - 3
 - 5
- _____ 9. A ground-state atom of which element has one electron in its fourth and outermost main energy level?
- K
 - Na
 - B
 - Ga
- _____ 10. Separating unpaired electrons into as many orbitals as possible
- places the electrons farther from the nucleus.
 - results in more valence electrons.
 - minimizes the repulsion between electrons.
 - produces a greater spin quantum number.