

## Assessment

# Arrangement of Electrons in Atoms

## Section Quiz: The Quantum Model of the Atom

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

- \_\_\_\_\_ 1. Quantum numbers are sets of numbers that
  - a. are characteristic only of the hydrogen atom.
  - b. consist of multiples of two.
  - c. specify properties of electrons.
  - d. relate the energies of protons in the atomic nucleus.
  
- \_\_\_\_\_ 2. Which mathematically describes the wave properties of electrons?
  - a. quantum theory
  - b. atomic theory
  - c. the Bohr model of the atom
  - d. the Rutherford model of the atom
  
- \_\_\_\_\_ 3. How many different orientations are there for *d* orbitals?
  - a. 1
  - b. 3
  - c. 5
  - d. 7
  
- \_\_\_\_\_ 4. Which orbitals can be modeled as dumbbell shaped?
  - a. *s*
  - b. *p*
  - c. *d*
  - d. *f*
  
- \_\_\_\_\_ 5. What is the correct notation for a sublevel within the first energy level?
  - a. *1s*
  - b. *1p*
  - c. *1d*
  - d. *1f*

**Section Quiz, *continued***

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- \_\_\_\_\_ 6. What is the maximum number of electrons that a single orbital can hold?
- a. 1
  - b. 2
  - c. 3
  - d. 4
- \_\_\_\_\_ 7. What is the total number of orbitals in the fourth main energy level?
- a. 1
  - b. 4
  - c. 9
  - d. 16
- \_\_\_\_\_ 8. Which is a wave property that electrons possess?
- a. emission
  - b. radiation
  - c. diffraction
  - d. absorption
- \_\_\_\_\_ 9. Which is *not* a quantum number?
- a. angular momentum quantum number
  - b. orbital quantum number
  - c. magnetic quantum number
  - d. spin quantum number
- \_\_\_\_\_ 10. How many electrons can a *d* sublevel contain?
- a. 2
  - b. 6
  - c. 10
  - d. 16