

## Assessment

# Arrangement of Electrons in Atoms

## Section Quiz: The Development of a New Atomic Model

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

- \_\_\_\_\_ 1. According to the Bohr model of the atom, which particles are allowed to exist in any one of a number of energy levels?
- electrons
  - protons
  - neutrons
  - Both (b) and (c)
- \_\_\_\_\_ 2. The line-emission spectrum of an atom is caused by the energies released when electrons
- “jump” from a lower energy level to a higher energy level.
  - “jump” from a higher energy level to a lower energy level.
  - “jump” from the ground state to an excited state.
  - None of the above
- \_\_\_\_\_ 3. Because excited hydrogen atoms always produced the same line-emission spectrum, scientists concluded that hydrogen
- has no electrons.
  - does not release energy.
  - releases energy of only certain values.
  - can exist only in the ground state.
- \_\_\_\_\_ 4. Which color of light in the visible spectrum has the longest wavelength?
- yellow
  - red
  - green
  - blue
- \_\_\_\_\_ 5. A quantum of energy is the
- frequency of electromagnetic energy given off by an atom.
  - wavelength of electromagnetic energy gained by an atom.
  - minimum quantity of energy that can be lost or gained by an atom.
  - continuous spectrum of energy given off by an atom.

**Section Quiz, continued**

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- \_\_\_\_\_ 6. Bohr's model correctly explains the spectra of atoms with how many electron(s)?
- one
  - two
  - three
  - four or more
- \_\_\_\_\_ 7. A form of energy that exhibits wave behavior as it travels through space is
- microwave radiation.
  - ultraviolet radiation.
  - infrared radiation.
  - All of the above
- \_\_\_\_\_ 8. In the equation  $c = \lambda \nu$ ,  $c$  represents
- the wavelength.
  - the frequency.
  - the speed of light.
  - Planck's constant.
- \_\_\_\_\_ 9. The process of an atom releasing energy when it moves to a lower energy state is called
- absorption.
  - emission.
  - translation.
  - regression.
- \_\_\_\_\_ 10. In the Bohr model of the atom, in which orbit is an electron in its lowest energy state?
- in the orbit closest to the nucleus
  - in the orbit farthest from the nucleus
  - in the electron cloud
  - midway between two orbits