

## 4-5 Practice

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1. Write out the electron configurations for (a) Potassium and (b) Cobalt. How many unpaired electrons does each possess?
2. Which element has the following electron configuration:  $1s^2 2s^2 2p^3$ ?
3. Write out the electron configurations for (a) silicon and (b) lithium. How many unpaired electrons does each possess?
4. Which element has the following electron configuration:  $1s^2 2s^2 2p^6 3s^2 3p^3$ ?
5. Write out the electron configurations for (a) Iridium and (b) Selenium. How many unpaired electrons does each possess?
6. Which element has the following electron configuration:  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^1$ ?
7. Write out the electron configurations for (a) bismuth and (b) vanadium. How many unpaired electrons does each possess?
8. Which element has the following electron configuration:  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10}$ ?
9. Write out the electron configurations for (a) Sulfur and (b) Mercury. How many unpaired electrons does each possess?
10. Which element has the following electron configuration:  $[\text{Xe}] 6s^2 4f^{14} 5d^6$ ?

## 4-5 Review and Reinforcement

### Electron Configurations

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If the statement is true, write "true." If it is false, change the underlined word or words to make the statement true.

- \_\_\_\_\_ 1. The Pauli Exclusion Principle states that an orbital can hold a maximum of two electrons.
- \_\_\_\_\_ 2. The sum of the superscripts in an electron configuration represents the total number of neutrons in the atom.
- \_\_\_\_\_ 3. The Aufbau principle states that electrons are added one at a time to the highest energy orbital's available until all the electrons of the atom have been accounted for.
- \_\_\_\_\_ 4. An orbital diagram uses arrows to represent the spin of the electrons.
- \_\_\_\_\_ 5. The ground state is the least stable energy state of an atom.
- \_\_\_\_\_ 6. According to Hund's rule, electrons occupy equal energy orbital's so that a maximum number of unpaired electrons results.

Write the orbital diagram for each of the following elements.

7. Magnesium

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8. Oxygen

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9. Aluminum

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10. Argon

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11. Scandium

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12. Phosphorus

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