

4-5 Practice Problems

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: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{14} 5d^6$?

4-5 Practice Problems

1. Write out the electron configurations for (a) potassium and (b) cobalt. How many unpaired electrons does each possess?

a) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$ 1 unpaired
 b) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^7$ 3 unpaired

2. Which element has the following electron configuration: $1s^2 2s^2 2p^3$?

Nitrogen

3. Write out the electron configurations for (a) silicon and (b) lithium. How many unpaired electrons does each possess?

a) $1s^2 2s^2 2p^6 3s^2 3p^2$ 2 unpaired
 b) $1s^2 2s^1$ 1 unpaired

4. Which element has the following electron configuration: $1s^2 2s^2 2p^6 3s^2 3p^3$?

Phosphorus

5. Write out the electron configurations for (a) iridium and (b) selenium. How many unpaired electrons does each possess?

77 a) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{14} 5d^7$
 3 unpaired

b) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^4$
 2 unpaired

6. Which element has the following electron configuration: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^1$?

Scandium

7. Write out the electron configurations for (a) bismuth and (b) vanadium. How many unpaired electrons does each possess?

83 a) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{14} 5d^3$
 3 unpaired
 b) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^5 4p^4$ - 2 unpaired

8. Which element has the following electron configuration: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10}$?

Cadmium

9. Write out the electron configurations for (a) sulfur and (b) mercury. How many unpaired electrons does each possess?

a) $1s^2 2s^2 2p^6 3s^2 3p^4$ 2 unpaired

b) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{14} 5d^{10}$
 No unpaired

10. Which element has the following electron configuration: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{14} 5d^6$?

→ Osmium