

## 4-5 Practice Problems

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

## 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)  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^3 4p^4$  - 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