

Name \_\_\_\_\_ Per \_\_\_\_\_

### Electron Configuration Practice Worksheet

***In the space below, write the unabbreviated electron configurations of the following elements:***

1. sodium \_\_\_\_\_

2. magnesium \_\_\_\_\_

3. iron \_\_\_\_\_

4. potassium \_\_\_\_\_

5. selenium \_\_\_\_\_

***In the space below, write the abbreviated electron configurations of the following elements:***

6. cobalt \_\_\_\_\_

7. silver \_\_\_\_\_

8. tellurium \_\_\_\_\_

9. radium \_\_\_\_\_

10. lawrencium \_\_\_\_\_

***Determine what elements are denoted by the following electron configurations:***

11.  $1s^2 2s^2 2p^6 3s^2 3p^4$  \_\_\_\_\_

12.  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^1$  \_\_\_\_\_

13.  $[\text{Kr}] 5s^2 4d^{10} 5p^3$  \_\_\_\_\_

14.  $[\text{Xe}] 6s^2 4f^{14} 5d^6$  \_\_\_\_\_

15.  $[\text{Rn}] 7s^2 5f^{11}$  \_\_\_\_\_

***Explain what is wrong with the following electron configurations:***

16.  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 4d^{10} 4p^6$

17.  $1s^2 2s^2 2p^6 3s^3 3d^5$

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### Chemistry I Practice - "Electron Configurations"

Use the following electron configurations and your periodic table to identify the element:

1.  $1s^2 2s^2 2p^6 3s^2 3p^5$     2.  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$     3.  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^1$

4. Describe the method that you used to solve problems 1 - 3. Be specific.

Use the following clues to identify the element. Show any figuring in the space below.

5. This element has a 3p sublevel that contains 3 electrons.
6. This element has a 4s sublevel with 2 electrons for its outermost electrons.
7. This element has 1 electron in its 3d sublevel.
8. This element has 5 electrons in its 5p sublevel
9. This element has a completely filled 3p sublevel for its outermost electrons.
10. This element has 2 electrons in its 6p sublevel.

## Solutions to Electron Configurations Practice Worksheet

**In the space below, write the unabbreviated electron configurations of the following elements:**

1. sodium  $1s^2 2s^2 2p^6 3s^1$
2. magnesium  $1s^2 2s^2 2p^6 3s^2$
3. iron  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^6$
4. potassium  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$
5. selenium  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^4$

**In the space below, write the abbreviated electron configurations of the following elements:**

6. cobalt  $[\text{Ar}] 4s^2 3d^7$
7. silver  $[\text{Kr}] 5s^2 4d^9$
8. tellurium  $[\text{Kr}] 5s^2 4d^{10} 5p^4$
9. radium  $[\text{Rn}] 7s^2$
10. lawrencium  $[\text{Rn}] 7s^2 5f^{14} 6d^1$

**Determine what elements are denoted by the following electron configurations:**

11.  $1s^2 2s^2 2p^6 3s^2 3p^4$  Sulfur
12.  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^1$  rubidium
13.  $[\text{Kr}] 5s^2 4d^{10} 5p^3$  antimony
14.  $[\text{Xe}] 6s^2 4f^{14} 5d^6$  osmium
15.  $[\text{Rn}] 7s^2 5f^{11}$  einsteinium

**Explain what is wrong with the following electron configurations:**

16.  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 4d^{10} 4p^6$  The 3d level should come after the 4s level.
17.  $1s^2 2s^2 2p^6 3s^3 3d^5$  The 3s level cannot hold 3 electrons.

## Solutions to "Electron Configurations"

1. chlorine

2. calcium

3. gallium

4. I used the principal quantum number on the outermost electrons to determine the row on the periodic table where the element is located. I then counted the electrons, starting from the left side of that row until I reached the number of electrons that was indicated in the configuration.

5. phosphorus

6. calcium

7. scandium

8. iodine

9. argon

10. lead