**Chemistry Unit 4 Atomic Structure and PT Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Electron Configurations Worksheet Period: \_\_\_\_**

**Fill in Orbital Notation for elements below. Watch out for Hund’s Rule.**

1. **SULFUR**

**1s 2s 2p 3s 3p 3d**

**4s 4p 4d 4f**

**5s 5p 5d 5f**

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1. **IRON**

**1s 2s 2p 3s 3p 3d**

**4s 4p 4d 4f**

**5s 5p 5d 5f**

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1. **COBALT**

**1s 2s 2p 3s 3p 3d**

**4s 4p 4d 4f**

**5s 5p 5d 5f**

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1. **TIN**

**1s 2s 2p 3s 3p 3d**

**4s 4p 4d 4f**

**5s 5p 5d 5f**

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1. **TUNGSTEN**

**1s 2s 2p 3s 3p 3d**

**4s 4p 4d 4f**

**5s 5p 5d 5f**

**6s 6p 6d 6f**

Determine what elements are denoted by the following electron configurations:

1. 1s22s22p63s23p5  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. 1s22s22p63s23p64s23d104p65s1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. [Kr] 5s24d105p3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. [Xe] 6s24f145d6 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. [Rn] 7s25f11  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Determine which of the following electron configurations are ***not*** valid: Correct them if they are not valid.

1. 1s22s22p63s23p64s24d104p5 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 12. 1s22s22p63s33d5 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 13. [Ra] 7s25f8 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 14. [Kr] 5s24d105p5 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 15. [Xe] \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*In the space below, write the* ***expanded electron configurations (ex. = 1s22s1)*** *of the following elements:*

1. sodium \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. potassium \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. chlorine \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. bromine \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. oxygen \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

In the space below, write the **abbreviated electron configurations (ex. Li= [He]2s1)** of the following elements:

1. manganese \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. mercury \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. nitrogen \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. silicon \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. argon \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. In the space below, write the **electron configuration** (expanded or abbr.) of the following **ions**:
7. Ba+2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. Cl- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. Fe+3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. Au+1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
11. Se-2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_