1. Write an aufbau diagram for **Thallium**
2. Draw the orbitals for **Fluorine**



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

1. Copper\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Neon\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Francium\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Uranium\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

1. Gold\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Cobalt\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Tellurium\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Einstienium\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

1. 1s22s22p63s23p4

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. 1s22s22p63s23p64s23d104p65s1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. [Kr] 5s24d105p3

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. [Xe] 6s24f145d6

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Determine which of the following electron configurations are not valid:*

1. 1s22s22p63s23p64s24d104p5 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. 1s22s22p63s33d5

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. [Ra] 7s25f8

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. [Kr] 5s24d105p5

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



|  |  |  |  |
| --- | --- | --- | --- |
| Wave Types(use Electromagnetic Spectrum handout) | Wavelength (m)c=2.998 x 108 m/s | Frequency (Hz) | Energy (J)h=6.626 x 10-34 |
| 1) |  | 9.751 x 1018 Hz |  |
| 2) |  |  | 2.61 x 10-19 J |
| 3) | 5.8762 x 10-2 m |  |  |

Answer the following short answer questions.

1. Which of the following electron configurations would be considered at its ground state? Why?
	1. 1s22s22p4
	2. 1s22s12p2

 Why?

1. Which of the following electron configurations would be considered at its excited state? Why?
	1. 1s22s22p4
	2. 1s22s12p2

Why?

1. Describe Hund’s Rule and the Pauli Exclusion Principle.
2. Describe the Wave-Particle of Light Theory and how it was discovered. Make sure to list the scientist that were involved and what they contributed.
3. Explain how electrons produce light from the ground state to an excited state.
4. Explain how the speed of light equation and the energy equation relate to the Electromagnetic Spectrum and photons.