1) Draw the full orbital diagram for the element Nitrogen:



2) Write the full electron configuration for Fluorine:

3) Write the noble gas configuration for Zinc:

4) Draw the full orbital diagram for the element Titanium:

5) Write the full electron configuration for Silver:

6) Write the full configuration for Lanthanum:

7) Describe each part of the electron configuration and what it represents: Example: 2p4

2: p: 4:

8) What is the maximum number of electrons that can fit in a D Sublevel?

9) How many orbitals make up a P Sublevel?

10) Describe what the Pauli Exclusion Principle says about electrons. *(Don’t talk about the arrows in the box, talk about the electron itself)*

11) Explain Hund’s rule in words, then show me a made-up non-example where this rule is not being followed.

12) Briefly describe how the current theory of atomic structure (orbitals) is different from Bohr’s theory of atomic structure (Bohr diagrams).

13) How many valence electrons does an atom of Selenium have? Which orbitals are these electrons in?

14) Sketch what *one* of the s-orbitals look like. Sketch what *one* of the p-orbitals looks like. Sketch what *one* of the d-orbitals looks like. Be sure to label which is which.

15) If a brand new element were to be discovered with 119 protons and electrons, which energy level and orbital would its last electron MOST LIKELY go into?

For the following situations, determine if the electron configuration is valid. If it is, identify the element. If not, describe the error.

16) 1s2 2s2 2p6 3s3 3p1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

17) 1s2 2s2 2p6 3s2 3p6 4s2 4d10 4p5 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

18) [Xe] 6s2 4f14 5d10 6p3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

19) [Ar] 3s2 3p1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

20) 1s2 2s2 2p6 3s4 2p6 4s2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_