**Chemistry Exam #2 Study Guide**

**Vocab Terms:**

Electron configuration

Valence electron

Noble gas configuration

Energy level

Octet Rule

Atomic radius

Ionization energy

Chemical bond

Ion

Cation

Anion

Ductile

Malleable

Electronegativity

Periodic Trends

Polar

Nonpolar

Electron dot diagram

Lewis Dot Structure

Compounds

Molecules

Polyatomic ions

Ionic bond

Covalent bond

Orbitals

**Directions: write what each of the following rules states –**

Aufbau Principle

Pauli Exclusion Principle

Hund’s Rule

**Directions: Answer the following questions regarding an atom with the electron configuration 1*s*22*s*22*p*5.**

How many electrons are present in this atom?

What element is this atom?

How many of this atom’s *p* orbitals are completely filled?

How many unpaired electrons are there in this atom?

How many inner-shell electrons does this atom have?

**Directions: You need to know correct orbital notation, electron configuration notation, and noble gas notation for any element. Fill in the chart for practice.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Orbital Notation** | **Complete Electron Configuration** | **Noble Gas Notation** |
| Carbon |  |  |  |
| Oxygen |  |  |  |
| Aluminum |  |  |  |
| Chlorine |  |  |  |
| Calcium |  |  |  |
| Bromine |  |  |  |
| Cadmium |  |  |  |

Consider the elements Nitrogen (N), Potassium (K), Bromine (Br), and Fluorine (F).

1. Which element has the highest electronegativity?
2. Which element has the smallest ionization energy?
3. Which element has the largest atomic radius?
4. Will sodium be smaller or larger when it ionizes?
5. Circle the ion or element in the given pair that has the **largest** radius.
   1. Fe+2
   2. N
   3. As
   4. Ca
6. Write each of the three elements in order from SMALLEST to LARGEST electronegativity.
   1. Lithium, potassium, sodium

