**Name: Period: Seat#:**

**Worksheet #3**

1. For each given element, fill in the orbital diagram and then write the electron configuration for the element.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | |  | |  | |  | |  | |
| 1. **Ar** | | 1. **Mg** | | 1. **N** | | 1. **Li** | | 1. **P** | | 1. **Cl** |
| # of e- = | | # of e- = | | # of e- = | | # of e- = | | # of e- = | | # of e- = |
|  | |  | |  | |  | |  | |  |

1. Write the electron configurations of the following elements:

|  |  |  |
| --- | --- | --- |
|  | **Long Form (Full Configuration)** | **Short form (Noble Gas Configuration)** |
| 1. Ar |  |  |
| 1. Mg |  |  |
| 1. N |  |  |
| 1. Li |  |  |
| 1. P |  |  |
| 1. Cl |  |  |

1. Fill in the orbital diagram for the element, Fe, and write the electron configuration of Fe in the long and short form.

|  |  |
| --- | --- |
|  | **Long Form (Full Configuration)** |
|  |
| **Short form (Noble Gas Configuration)** |
|  |

1. A few elements do not follow the “rules”. There is some lowering of the energy of the atom by completely filling or half-filling the five d-orbitals. Fill in the following orbital diagrams for the elements indicated, write the electron configurations in long and short form.

|  |  |
| --- | --- |
| **a)** Copper  # of e- = | **Long Form (Full Configuration)** |
|  |
| **Short form (Noble Gas Configuration)** |
|  |
| **b)** Chromium  # of e- = | **Long Form (Full Configuration)** |
|  |
| **Short form (Noble Gas Configuration)** |
|  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sc | Ti | V | Cr | Mn | Fe | Co | Ni | Cu | Zn |
| Y | Zr | Nb | Mo | Tc | Ru | Rh | Pd | Ag | Cd |
| La | Hf | Ta | W | Re | Os | Ir | Pt | Au | Hg |

1. Shade in the 6 elements that do not follow Aufbau Principle:
2. Fill in the orbitals that are filled by these elements.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 1s |  |  |  | | | | | | |  |  |  |  |  |  |  | 1s |
| 2s | |  |  |  |  | | | | | |
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1. Write the orbital occupied by the last electron of each of the following elements:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **As** | **W** | **Li** | **U** | **O** | **Rn** | **V** |
|  |  |  |  |  |  |  |