**Station Review Unit #1: Structure and Bonding**

**Station #1**

**Who is credited for discovering the proton, electron and neutron?**

**Explain the Gold Foil Experiment.**

**Explain Bohr’s contribution to the atom include (emission spectra).**

**Station #2**

**Define the following terms:**

**Aufbau Principle**

**Hund’s Rule**

**Pauli exclusion Principle**

**Station #3**

**For n=4, what are all the possible allowed quantum numbers. Include a check to make sure you haven’t missed any.**

**Station #4**

**Write electron configuration for the following elements and their ions**

1. **Cr**
2. **Fe**

**Write shorthand electron configuration for Sn**

**Station #5**

**Draw the orbital box diagram for Si and explain.**

**Station #6**

**Summarize the periodic trends:**

**AR, IE, EA, EN, Reactivity**

**Station #7**

**Fill in the following chart:**

|  |  |
| --- | --- |
| **Type of Solids** | **Properties** |
| **Ionic** |  |
| **Covalent – Molecular** |  |
| **Covalent – Network Solid** |  |
| **Metallic** |  |

**Station #8**

**Draw the Lewis Structure for NO3-, resonance structures and calculate the formal charge on each atom in one structure.**

**Station #9**

**Fill in the following chart**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Compound****Rough Work** | **VSEPR Code** | **Geometric Shape** | **Lewis Structure with Shape** | **Polarity (add dipoles)** | **Intermolecular Forces Present** |
| **HCN** |  |  |  |  |  |
| **BF3** |  |  |  |  |  |
| **H2O** |  |  |  |  |  |
| **AsF5** |  |  |  |  |  |

**Predict the order of increasing melting points in the above substances.**

**Station #10**

**What intermolecular forces are involved in the following situations?**

1. **oxygen dissolved in water**
2. **magnesium chloride dissolved in water**