**Unit 2: BASIC CHEMISTRY**

1. Defend or counter the statement: “Biology is the chemistry that works.”
2. Define the following terms:

|  |  |
| --- | --- |
| **Element**  |  |
| **Atom**  |  |
| **Proton**  |  |
| **Neutron**  |  |
| **Electron**  |  |
| **Compound**  |  |
| **Molecule**  |  |
| **Acid**  |  |
| **Base**  |  |
| **Metabolism**  |  |

1. What are the Four Most Common Elements in the human body?
2. Label the locations and charges of the Three Subatomic Particles in an Atom:



1. Determine the number of protons, neutrons, and electrons for the following elements:

|  |  |  |  |
| --- | --- | --- | --- |
| ***Element***  | ***Protons***  | ***Neutrons***  | ***Electrons***  |
| **Carbon**  |  |  |  |
| **Hydrogen** |  |  |  |
| **Nitrogen** |  |  |  |
| **Sodium**  |  |  |  |
| **Iron**  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. Boron has two isotopes, B-10 and B-11. B-10 has five protons and five neutrons. What many protons and neutrons would B-11 have? Explain.
2. How do compounds form? Differentiate between ionic and covalent bonding
3. Determine whether the substance in an acid, base or neutral:

|  |  |  |  |
| --- | --- | --- | --- |
| **Vinegar**  |  | **pH = 4.7**  |  |
| **Ammonia**  |  | **pH = 9.8**  |  |
| **Bleach**  |  | **Stomach Juices**  |  |
| **Car Battery**  |  | **Urine**  |  |
| **Water**  |  | **Blood**  |  |

1. What is the Most Essential Compound for living things?
2. Describe and explain four important properties of water:

11. When scientists discover another planet, they look for water on or below the surface. Why?