**CHAPTER 6: CHEMISTRY IN BIOLOGY OUTLINE QUIZ #2**

\* From discussion #2 on chemical bonding.

1. One more time, fill in the chart below using your period table.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Element** | **Symbol** | **Atomic #** | **Mass #** | **# of Protons** | **# of Neutrons** | **# of Electrons** | **Valence Electrons** |
| Aluminum |  |  |  |  |  |  |  |
|  |  |  | 14 |  |  |  |  |
|  |  |  |  | 20 |  |  |  |

1. The following is a list of isotopes fill in the chart using the periodic table.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Isotopes** | **Symbol** | **Atomic #** | **Mass #** | **# of Protons** | **# of Neutrons** | **# of Electrons** | **Valence Electrons** |
| K - 32 |  |  |  |  |  |  |  |
| C- \_\_\_\_ |  |  | 14 |  |  |  |  |
| Cl - \_\_\_\_ |  |  |  |  | 37 |  |  |

1. H2O and NaCL are examples of chemical \_\_a\_\_. They show the chemical symbols for each element they contain the # of \_\_b\_\_ for each element.
2. What is the force that holds atoms together?
3. Chemical \_\_\_a\_\_ are formed from the interaction of \_\_b\_\_\_.
4. \_\_\_\_a\_\_\_ travel in energy levels around the \_\_\_b\_\_\_.
5. The outer most energy level is referred to as the \_\_\_a\_\_\_ and the electrons located there are \_\_\_b\_\_\_.
6. The energy level closest to the nucleus can hold a maximum of \_\_a\_\_ electrons and the energy levels that follow can hold up to \_\_\_b\_\_ electrons.
7. Energy levels that are completely filled are \_\_\_\_\_ stable than those that are partially filled.
8. Atoms \_\_\_a\_\_\_ or \_\_\_b\_\_\_ electrons from other atoms to form \_\_\_c\_\_\_ and become stable.
9. The \_\_\_a\_\_\_ necessary for life processes is \_\_\_b\_\_\_ in chemical bonds. When bonds are \_\_\_\_c\_\_\_, energy is released.
10. \_\_\_a\_\_\_ bonds form from the sharing of electrons which forms a \_\_\_b\_\_\_.
11. \_\_\_a\_\_\_ bonds are created from the electrical attraction between two \_\_\_b\_\_.
12. Metals are more likely to \_\_a\_\_\_ electrons and non-metals are likely to \_\_b\_\_ electrons.
13. A(n) \_\_\_\_\_\_ is charged atom.
14. A(n) \_\_\_a\_\_\_ is a positively charged ion and a(n) \_\_b\_\_\_\_ is a negatively charged ion.
15. Ions help maintain \_\_\_\_\_ as they travel in and out of \_\_\_\_\_.
16. Most ionic compounds \_\_\_\_\_\_\_ in water.

**Bonding Practice**

1. Complete the chart below on ***ionic*** bonding.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ELEMENTS BONDING | HOW THEY BOND | CHEMICAL FORMULA | NAME OF IONIC COMPOUND |
| 1 | Potassium and Flourine |  |  |  |
| 2 | Beryllium and Sulfur |  |  |  |
| 3 | Sodium and Flouride |  |  |  |
| 4 | Magnesium and Oxygen |  |  |  |
| 5 | Sodium and Oxygen |  |  |  |
| 6 | Calcium and Chlorine |  |  |  |
| 7 | Calcium and Oxygen |  |  |  |
| 8 | Lithium and Nitrogen |  |  |  |
| 9 | Magnesium and Iodine |  |  |  |
| 10 | Barium and Iodine |  |  |  |
| BONUS | Magnesium and Nitrogen |  |  |  |

1. Complete the chart below on ***covalent*** bonding.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ELEMENTS BONDING | HOW THEY BOND | STRUCTURAL FORMULA | NAME OF MOLECULE |
| 1 | H2 |  |  |  |
| 2 | N2 |  |  |  |
| 3 | Br2 |  |  |  |
| 4 | HCl |  |  |  |
| 5 | HF |  |  |  |
| 6 | F2O |  |  |  |
| 7 | CO2 |  |  |  |
| 8 | H2S |  |  |  |
| 9 | H2O |  |  |  |
| 10 | NH3 |  |  |  |
| 11 | CH4 |  |  |  |