Honors Biology Chapter 2 Review Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1) a. Draw an atom with 4 protons, 4 electrons, and 4 neutrons. Make a key to label each.

b. What element?\_\_\_\_\_\_\_\_ Mass number? \_\_\_\_\_\_ How do you calculate mass #?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2) Fill in the chart (assume atoms are neutral.)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Element** | **Symbol** | **Protons** | **Neutrons** | **Electrons** | **Atomic Number** | **Mass Number** |
| Hydrogen | H | 1 |  |  | 1 |  |
| Lithium | Li | 3 |  |  |  | 7 |
| Carbon | C |  | 6 |  | 6 |  |
| Fluorine | F |  | 9 | 9 |  |  |
| Zinc | Zn |  |  | 30 | 30 | 65 |

3) An atom has 9 protons, 8 neutrons and 10 electrons.

What is the charge? \_\_\_\_\_\_\_\_\_\_\_ What is the mass number? \_\_\_\_\_\_ What is the atomic number? \_\_\_\_\_\_\_\_\_\_

One of the atoms in the chart above is an isotope to this atom. Which atom? \_\_\_\_\_\_\_ How do you know? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4) Draw the Fluorine and Lithium atoms from the chart above (including protons, neutrons, and electrons. Show how each becomes an ion. Then draw and explain how an ionic bond forms.

5) What is the difference between a polar covalent and a nonpolar covalent bond?

What type of covalent bond do you find in O2 gas? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_H20? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6) Draw two water molecules. Explain with words and pictures how a hydrogen bond forms between two water molecules.

7) Explain at least 3 properties of water (think about hydrogen bonding) that make it important to life.

8) Neutral substances have a pH of \_\_\_\_\_\_. Substances with a pH higher than 7 are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Substances with a pH lower than 7 are \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Give an example of an acid\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and a base\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.