PLI 2
Wednesday May 25, 2016

1. Label each substance as pure (P) or as a mixture (M):

a) H_2O ___
b) Orange juice (with pulp) ___
c) Blood ___
d) Iron ___
e) Sucrose ___

2. Label each substance as heterogeneous (Het) or homogeneous (Hom):

a) Air ___
b) Sand on the beach ___
c) A cup of black coffee ___
d) Rain water ___
e) Simple syrup ___

3. Label each property as extensive (E) or intensive (I):

a) Volume ___
b) Density ___
c) Mass ___
d) Melting point ___
e) Boiling point ___
f) Solubility ___

4. Does the following description of a compound or element refer to its physical properties (phys) or chemical properties (chem)?

a) The atomic weight of carbon is 12 amu ___
b) Magnesium burns in air to produce white solid___
c) The melting point of gold is 1062 ºC___
d) The density of uranium is 18.70 g/cm^3___
e) Zinc reacts with hydrochloric acid to produce hydrogen gas___

5. Label each as kinetic (K) or potential (P) energy?

a) Wheel spinning ___
b) Skier at the top of a mountain ___
c) Fuel before it is burned ___
d) Current in a wire ___

e) Vibrations of water molecules in an ice cube ___

6. For each of the following elements, give both the name and the chemical formula of its ion. (use the periodic table)

a) ex. Sodium: Na+, sodium cation.

b) Calcium:

c) Silver:

d) Sulfur:

e) Chromium (2 answers!):

f) Iodine:

g) Hydrogen (2 answers!):

7. The element copper has two stable isotopes. Isotope A has an atomic mass of 62.9296 u, while Isotope B has an atomic mass of 64.9278 u. According to the periodic table, copper has an atomic mass of 63.5463 u. Determine the percentage occurrence of each isotope.

8. Theobromine, $C_7H_8N_4O_2$, is found in chocolate and has been shown to have properties that stimulate the heart, dilate blood vessels, and increase fluid lose in the urine:

a) What is the molar mass of theobromine?

b) What is the percent composition by moles of each of the elements in theobromine?

c) What is the percent composition by mass of each of the elements of theobromine?

9. I poured 1.50 mL of 100% isopropyl alcohol, $CH_3CHOHCH_3$ (density 0.786 g/mL at room temperature), on a paper cut to clean it. How many carbon atoms did I just pour on my finger?