Name: _____ Class: _____

Homework: Conservation of Mass

*The **Law of Conservation of Mass** states that mass in a closed system will remain constant (the same).*
"Matter is neither created nor destroyed."
*A **closed system** is one to which nothing can be added or taken away.*

Fill in the blank with the correct number:

1.) 40 g of calcium reacts with 71 g of chlorine to produce _____ g of calcium chloride.

2.) _____ g of potassium reacts with 16 g of oxygen to produce 94 g of potassium oxide.

3.) 14 g of lithium reaction with _____ g sulfur to produce 46 g of lithium sulfide.

4.) 24 g of magnesium reacts with 38 g of fluorine to produce _____ g magnesium fluoride.

5.) 65.5 g copper reacts with _____ g oxygen to produce 81 g copper (I) oxide.

6.) 88 g of strontium reacts with 160 g bromine to produce _____ g strontium bromide.

7.) 46 g of sodium reacts with _____ g chlorine to produce 117 g sodium chloride.

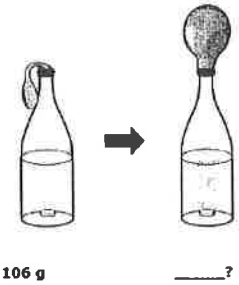
8.) _____ g iron reacts with 71 g chlorine to produce 129 g of iron (II) chloride.

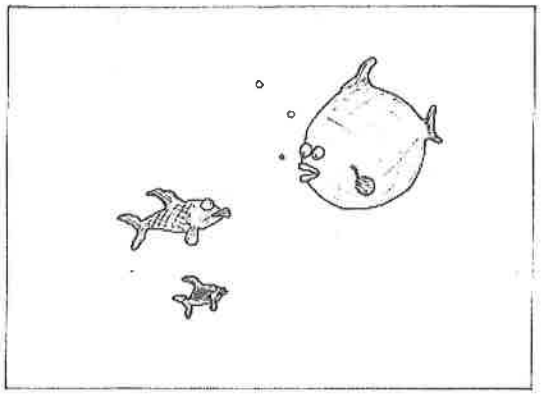
9.) 137 g of barium reacts with _____ g iodine to produce 391 g barium iodide.

10.) _____ g hydrogen reacts with 32 g of oxygen to produce 34 g of hydrogen peroxide.

11.) Two students conducted an experiment to measure the amount of gas produced by an Alka-Seltzer tablet in water. After putting the system together, they measured the mass of the equipment and Alka-Seltzer tablet. After they dropped the Alka-Seltzer tablet in the bottle, a reaction took place and a gas was produced. Predict the mass after the reaction took place.

A. 63 g
B. 96 g
C. 106 g
D. 156 g




"I'm not a puffer fish. I swallowed an Alka-Seltzer."

12.) Fill in the blank for the following equation:

$3NaHCO_3 + C_6H_8O_7 \rightarrow 3CO_2 + 3H_2O + Na_3C_6H_5O_7$

12 grams + 12 grams _____**grams** + 10 grams + 10 grams

13.) The Law of Conservation of Mass states that mass is neither created nor destroyed in an ordinary chemical reaction. When an iron nail rusts, it seems to get heavier in mass. Does the iron nail follow the Law of Conservation of Mass?

A. No, rusting is an exception to the Law of Conservation of Mass.
B. No, since rusting is a chemical change it does not follow the Law of Conservation of Mass.
C. Yes, the iron rearranges its protons so that the masses are the same before and after the reaction and rusting follows the Law of Conservation of Mass.
D. Yes, iron chemically combines with the oxygen in the air so if you add the oxygen into the mass of the chemicals before the reaction, the mass after the reaction is the same.

14.) When wood burns, a small amount of ashes is made. Why is the mass of the wood before the fire not equal to the mass of the ashes after the reaction?

A. The mass of the wood has been destroyed.
B. The mass of the wood and the oxygen that allowed it to burn will equal the mass of the ashes and the gas given off during the burning.
C. The mass of the wood and the ashes equals the mass of the oxygen and the smoke given off during the time that the wood burned.
D. The wood has holes in it so it is actually lighter in mass than it appears. The mass of just the wood will equal the mass of just the ashes after the burning.

15.) How does the Law of Conservation of Mass apply to a burning candle?

A. The amount of wax before the reaction equals the amount of energy afterwards.
B. The mass of the wick before the reaction equals the mass of the smoke afterwards.
C. The mass of the wick, wax that burned and the oxygen that helped the flame before the reaction equals the mass of the smoke and the gases released after the reaction.
D. The mass of the molecules of the candle before the reaction equals the mass of the candle and burned wick after the reaction.

16.) Which of the following reactions best illustrates the Law of Conservation of Mass?

A. $H_2O_2 \rightarrow H_2O + O_2$
B. $Na + CuS \rightarrow Na_2S + 2\ Cu$
C. $K + AgCl \rightarrow KCl + Ag$
D. $NaOH + 2\ HCl \rightarrow NaCl + H_2O$

17.) When sodium chloride reacts with calcium oxide to form sodium oxide plus calcium oxide, which of the following equations best illustrates the Law of Conservation of Mass?

A. $NaCl + CaO \rightarrow Na_2O + Ca\ Cl_2$
B. $4\ NaCl + CaO \rightarrow 2\ Na_2O + CaCl_2$
C. $2\ NaCl + CaO \rightarrow Na_2O + CaCl_2$
D. $3\ NaCl + 2\ CaO \rightarrow Na_2O + 3\ CaCl_2$

18.) Which chemical equation best illustrates the Law of Conservation of Mass?

A. $2\ H20 \rightarrow H_2 + O_2$
B. $Zn + HCl \rightarrow ZnCl_2 + H_2$
C. $Al_4C_3 + 3H_2O \rightarrow CH_4 + 4\ Al(OH)_3$
D. $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

19.) When 127 grams of copper reacts with 32 grams of oxygen gas to form copper (II) oxide, there is no copper or oxygen left over. What is the mass of the copper (II) oxide produced?

A. 32 grams
B. 95 grams
C. 127. 32 grams
D. 159 grams