Laws of Matter

Name: _____

Conservation, Definite Proportions, Multiple Proportions (Open Note)

Question 1 (1 point)

Which of the following reactions obeys the Law of Conservation of Mass?

___ A. $H_2O_2 \rightarrow H_2O + O_2$

___ B. $Na + CuS \rightarrow Na_2S + 2\ Cu$

___ C. $2\ K + AgCl \rightarrow 2\ KCl + Ag$

___ D. $Ba(OH)_2 + 2\ HCl \rightarrow BaCl_2 + 2\ H_2O$

Question 2 (1 point)

How many atoms of fluorine are present in a molecule of carbon tetrafluoride, CF_4?

___ A. 1

___ B. 2

___ C. 4

___ D. 5

Question 3 (1 point)

In oxides of nitrogen, such as N_2O, NO, NO_2, and N_2O_3, atoms combine in different small whole-number ratios. This evidence supports the law of

___ A. conservation of mass

___ B. definite composition

___ C. multiple proportions

___ D. mass action

Question 4 (1 point)

A certain compound contains 42.9% by mass carbon and 57.1% by mass oxygen. A sample of this compound is found which contains 7.88 g carbon. How many grams of oxygen does the sample contain?

___ A. 10.49 g O

___ B. 5.92 g O

___ C. 15.76 g O

___ D. 7.88 g O

Question 5 (1 point)

If 6.0 g of element X combine with 17 g of element Z, how many grams of element X combine with 85 g of element Z? (Assume the same compound is produced each time.)

___ A. 30. g

___ B. 23 g

___ C. 17 g

___ D. 91 g

Question 6 (1 point)

According to the law of conservation of mass, when sodium, hydrogen, and oxygen react to form a compound, the mass of the compound will be ____ the sum of the masses of the individual elements.

___ A. equal to

___ B. less than

___ C. greater than

___ D. either greater than or less than

Question 7 (1 point)

Oxygen can combine with carbon to form two compounds, carbon monoxide and carbon dioxide. The ratio of carbon atoms to oxygen atoms is carbon monoxide is 1:1. The ratio of carbon atoms to oxygen atoms in carbon dioxide is 1:2. This is an example of

___ A. the law of conservation of mass.

___ B. the law of conservation of energy.

___ C. the law of definite proportions.

___ D. the law of multiple proportions.

Question 8 (1 point)

Which chemical equation best illustrates the Law of Conservation of Mass?

___ A. $2\ H_2O \rightarrow H_2 + O_2$

___ B. $Zn + HCl \rightarrow ZnCl_2 + H_2$

___ C. $AlC_3 + 3H_2O \rightarrow CH_4 + 4\ Al(OH)_3$

___ D. $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

Question 9 (1 point)

According to the law of definite proportions, any two samples of potassium chloride will have

___ A. the same mass.

___ B. the same melting point.

___ C. slightly different molecular structures.

___ D. the same ratio of elements.

Question 10 (1 point)

When 5.0 g of tin reacts with hydrochloric acid, the mass of the products, tin chloride and hydrogen gas, totals 8.1 g. How many grams of hydrochloric acid were used in the reaction?

___ A. 5.0 g

___ B. 3.1 g

___ C. 8.1 g

___ D. 1.6 g

Question 11 (1 point)

The compound calcium phosphate has the formula $Ca_3(PO_4)_2$. Which of the following is true for this compound?

___ A. It contains 3 calcium atoms for every 4 oxygen atoms.

___ B. It contains 1 calcium atom for every 2 phosphorous atoms.

___ C. It contains 1 phosphorus atom for every 8 oxygen atoms.

___ D. It contains 3 calcium atoms for every 8 oxygen atoms.

Question 12 (1 point)

The compound calcium phosphate has the formula $Ca_3(PO_4)_2$. Which of the following is true for this compound?

___ A. It contains 3 calcium atoms for every 4 oxygen atoms.

___ B. It contains 3 calcium atoms for every 2 oxygen atoms.

___ C. It contains 1 calcium atom for every 2 phosphorus atoms.

___ D. It contains 3 calcium atoms for every 2 phosphorus atoms.