FIT Science

8th Grade Science

STAAR Test Item Questions

Category 1

1.

Which of the following chemical equations does not follow the Law of Conservation of Mass?

A. $2Na + 2H_2O => 2NaOH + H_2$

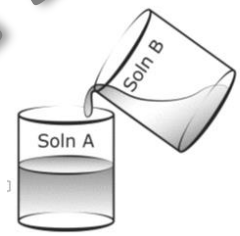
B. $Cu + H_2SO_4 => CuSO_4 + H_2O + SO_2$

C. $2Fe + 3O_2 => Fe_2O_3$

D. $16Cu + S_8 => 8Cu_2S$

2.

When two colorless solutions are mixed, a yellow precipitate forms.
Which of the following statements about this change is false?



F. New chemical bonds were formed and forming a new substance

G. The precipitate is NOT part of the newly formed substance

H. A chemical reaction occurred since there is evidence of a precipitate formation

J. The precipitate is evidence of a new substance has formed

3.

Precipitation reactions occur all around us. For example, sometimes, the pipes in our homes get clogged because magnesium and calcium oxidize depositing precipitates within the plumbing.

Therefore, the precipitates from the oxidizing magnesium and calcium is evidence that…

A. The same substance with similar properties were kept.

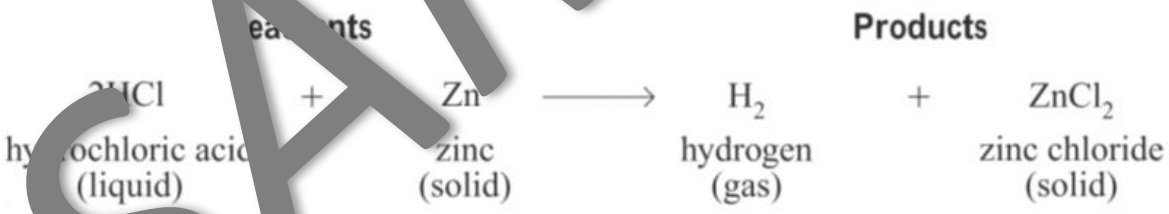
B. The same substance with different properties were formed.

C. A new substance with similar properties were forme

D. A new substance with similar properties w e fo ed.

4.

In the chemical reaction shown elow all o the HCl and Zn will react to form H_2 and $ZnCl_2$.



Which of the following statements does not describe the result of this reaction?

F. The Hydrogen gas will remain a gas and have 2 atoms.

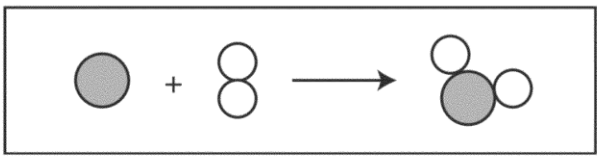
G. The Zinc Chloride will have more atoms than Zinc.

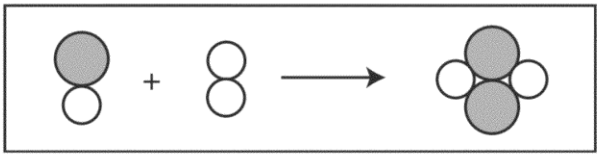
H. The mass of the products will not equal the mass of the reactants.

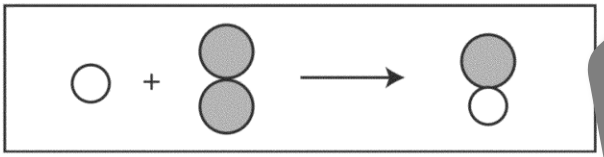
J. The mass of the products will equal the mass of the reactants.

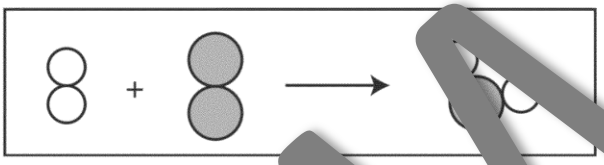
5.

The law of conservation of mass can be demonstrated by a chemical reaction. Which of the following models of a chemical reaction *best* represents the law of conservation of mass?

A 

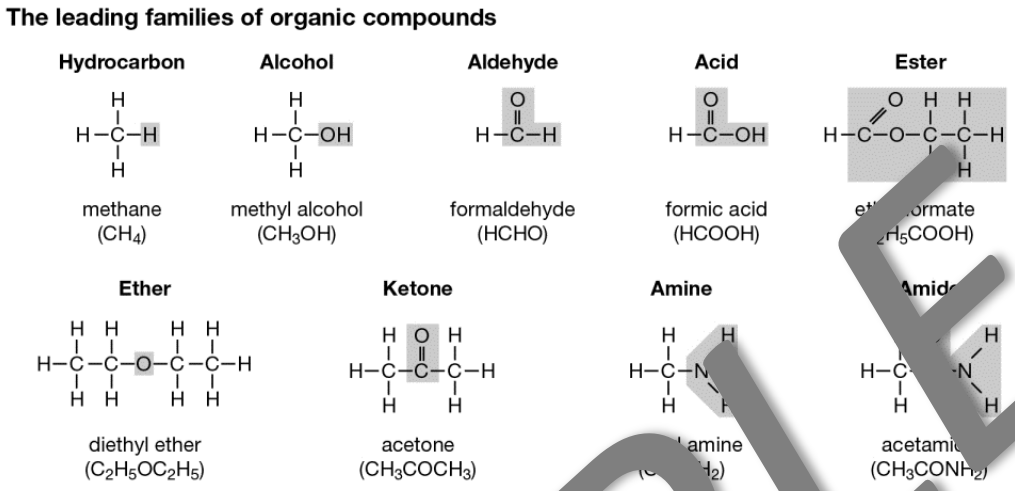
B 

C 

D 

6.

A list of organic compounds is shown below.



Chemical formulas are used to determine specific characteristics of compounds except…?

F. The chemical formula determines the total number of elements in the compound

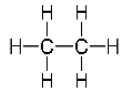
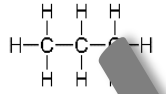
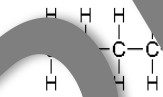
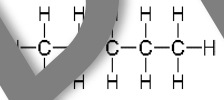
G. The chemical formula determines the total number of atoms in the compound

H. The chemical formula of each organic compound identifies the compound specifically

J. The chemical formula of each organic compound determines its chemical reactivity

7.

A list of hydrocarbons is shown below.

ALKANE	CARBON NUMBER	FORMULA	STRUCTURE
METHANE	1	CH_4	
ETHANE	2	C_2H_6	
PROPANE	3	C_3H_8	
BUTANE	4	C_4H_{10}	
PENTANE	5	C_5H_{12}	

Each of the hydrocarbons has a chemical formula that represents it specifically. Which hydrocarbon has double the amount of hydrogen atoms than methane?

A. Butane

B. Propane

C. Ethane

D. Pentane

8.

The following equation represents the process of photosynthesis in plants.

$$6CO_2 + 6H_2O \xrightarrow[\text{Chlorophyll}]{\text{Light}} C_6H_{12}O_6 + 6O_2$$

Using the equation above, how many oxygen atoms are in the beginning reactants?

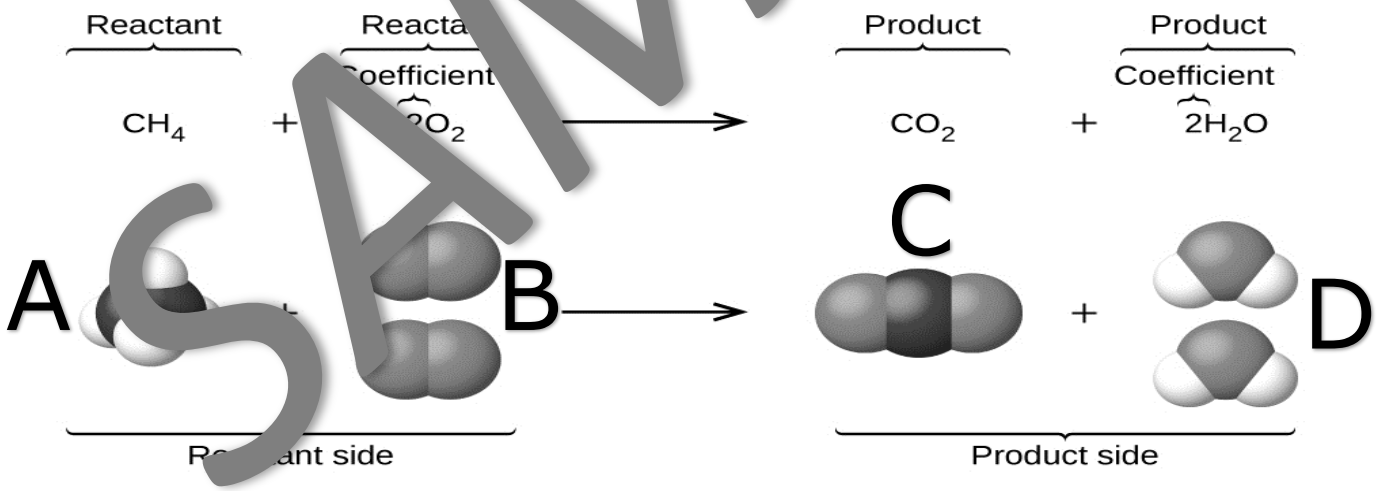
F. 2 atoms of Oxygen

G. 12 atoms of Oxygen

H. 6 atoms of Oxygen

J. 18 atoms of Oxygen

9. Which of the following models in the chemical equation represents 2 molecules of the water compound?



A. Model A

B. Model B

C. Model C

D. Model D

10.

Which of the following represents a physical change when using bread in a meal?

F. Burning the crust of the bread when making a sandwich

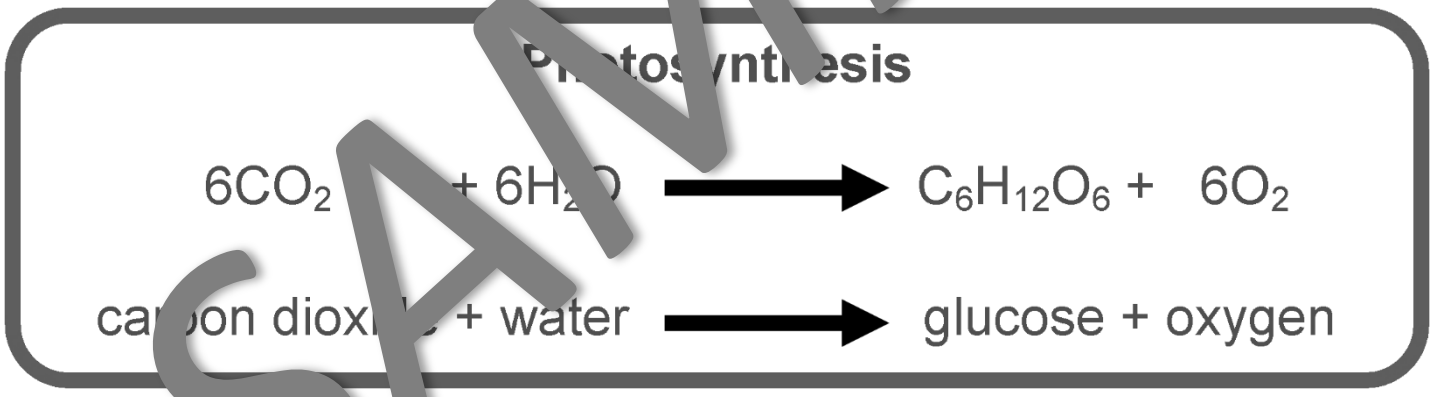
G. Placing the bread in a toaster to make toast and applying butter on it afterwards

H. Frying the bread to make two crunchy sandwiches

J. Using a cookie cutter to make shapes with the bread before placing the meat

11.

Analyze the photosynthesis equation shown below.



Which does not show evidence of a chemical reaction in the photosynthsis equation?

A. Glucose is a precipitate product of the Photosynthesis reaction

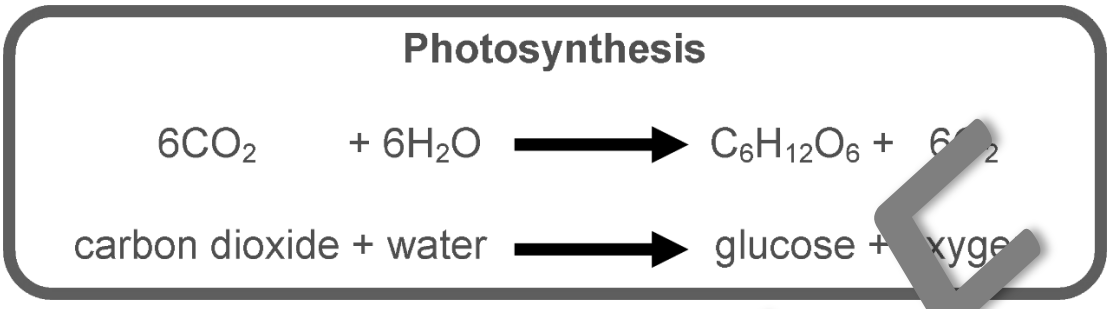
B. Sunlight energy acting as a catalyst for the photosynthesis reaction

C. The production of 6 molecules of Oxygen released as a gas

D. Formation of Glucose and Oxygen as new substances

12.

Analyze the photosynthesis equation shown below.



Which represents an evidence of a chemical reaction in the photosynthesis equation?

F. Carbon Dioxide gas reacting with liquid Water

G. Sunlight energy acting as a catalyst to the photosynthesis reaction

H. Having 6 molecules of Carbon Dioxide and Water

J. Production of a glucose and oxygen as new substances

13.

Methane combines with oxygen in the air to make carbon dioxide and water vapor.

How does the following chemical equation not relate to the law of conservation of mass?

$$CH_4 + 4O_2 => 2CO_2 + 4H_2O$$

A. Hydrogen atoms in the reactants were gained in the reaction

B. Oxygen atoms in the reactants were gained in the reaction

C. Atoms of reactants to products were rearranged and kept balanced in the equation

D. Atoms of reactants to products were rearranged and kept unbalanced in the equation

14.

Which of the following chemical equations follows the Law of Conservation of Mass?

F. $K_2CO_3 + BaCl_2 => KCl + BaCO_3$

G. $K_2CO_3 + BaCl_2 => 2KCl + BaCO_3$

H. $K_2CO_3 + 2BaCl_2 => 2KCl + BaCO_3$

J. $K_2CO_3 + 2BaCl_2 => KCl + 2BaCO_3$