Multiple-Choice Review Questions

Which of the following combinations of elements is likely to produce an ionic bond?

(A) Li and Cl

(B) Li and Rb

(C) N and S

(D) N and O

When 20.0 g of solid calcium carbonate is placed into a crucible and heated, it will decompose into 11.2 g of solid calcium oxide and carbon dioxide gas. There are several ways to represent this reaction. One of the most common is by a chemical equation, shown here:

$$CaCO_3(s) \rightarrow CaO(s) + CO_2(g)$$

Another way is to draw it. The crucible shown below illustrates what it looks like before any reaction has taken place. What will the crucible look like after the reaction has taken place?
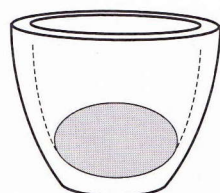

20.0 g CaCO_3(s)

(A) 8.8 g

(B) 11.2 g

(C) 31.2 g

(D) 8.8 g / 11.2 g

When fossil fuels are burned, carbon is released into the air in the form of carbon dioxide (CO_2) gas. Carbon dioxide is known as a greenhouse gas, because it traps heat in the atmosphere and has been implicated as a contributor to global warming. One method of reducing global warming is to plant trees. What role do trees play in reducing global warming?

(A) Trees absorb carbon dioxide and use the carbon to grow.

(B) Trees absorb sunlight as they grow, reducing the temperature.

(C) Trees produce oxygen, which reacts with the carbon dioxide in the air.

(D) Tree leaves reflect the sun's light back into space, thus less is available to heat up the atmosphere.
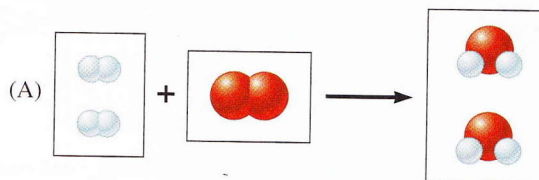
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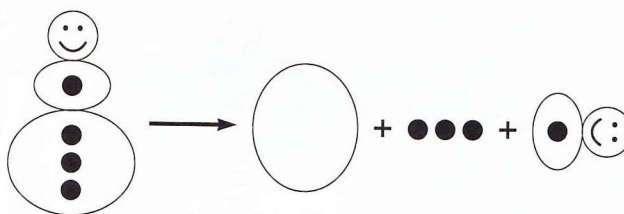
The diagram shown above best represents which of the following?

(A) Dalton's atomic theory

(B) law of definite proportions

(C) law of multiple proportions

(D) law of conservation of mass

5. Consider the reaction between hydrogen (H_2) gas and oxygen (O_2) gas to form water (H_2O).

$$2H_2(g) + O_2(g) \rightarrow 2H_2O(g)$$
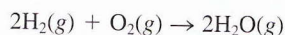
Which of the following is a correct representation of this reaction?

(A)

(B)

(C)

(D)
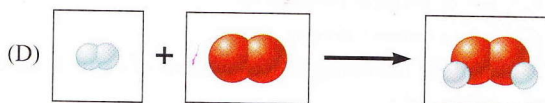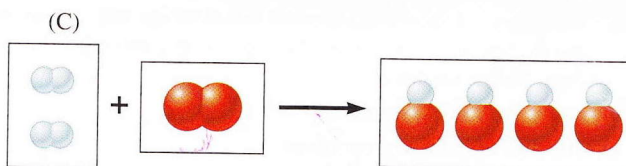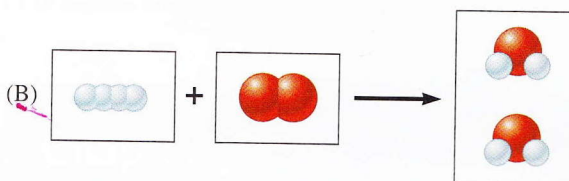
6. Which of the following equations satisfies the law of conservation of mass?

(A) $H_2(g) + O_2(g) \rightarrow H_2O(g)$

(B) $Na(s) + Cl_2(g) \rightarrow NaCl(s)$

(C) $N_2(g) + H_2(g) \rightarrow NH_3(g)$

(D) $C(s) + O_2(g) \rightarrow CO_2(g)$