1. In this unbalanced chemical reaction below, which components are the reactants?

$$
\mathrm{C}_{7} \mathrm{H}_{16}+\mathrm{O}_{2} \rightarrow \mathrm{CO}_{2}+\mathrm{H}_{2} \mathrm{O}
$$

(A) $\mathrm{C}_{7} \mathrm{H}_{16}$ and $\mathrm{CO}_{2}$
(B) $\mathrm{C}_{7} \mathrm{H}_{16}$ and $\mathrm{O}_{2}$
(C) $\mathrm{C}_{7} \mathrm{H}_{16}$ and $\mathrm{H}_{2} \mathrm{O}$
(D) $\mathrm{CO}_{2}$ and $\mathrm{H}_{2} \mathrm{O}$
2. What type of chemical reaction is listed below?

$$
\mathrm{CaCO}_{3} \rightarrow \mathrm{CaO}+\mathrm{CO}_{2}
$$

(A) Single-replacement reaction
(B) Double-replacement reaction
(C) Synthesis reaction
(D) Decomposition reaction
3. In the complete combustion reaction of propane $\left(\mathrm{C}_{3} \mathrm{H}_{8}\right)$ with oxygen gas, what are the products?
(A) $\mathrm{C}_{3} \mathrm{H}_{8}$ and $\mathrm{O}_{2}$
(B) $\mathrm{C}_{3} \mathrm{H}_{8}$ and $\mathrm{CO}_{2}$
(C) $\mathrm{H}_{2} \mathrm{O}$ and $\mathrm{CO}_{2}$
(D) $\mathrm{O}_{2}$ and $\mathrm{H}_{2} \mathrm{O}$
4. Use the following balanced equation. Which one of the following statements is false?

$$
2 \mathrm{H}_{2}+\mathrm{O}_{2}-->2 \mathrm{H}_{2} \mathrm{O}
$$

(A) Two molecules of $\mathrm{H}_{2}$ will produce one molecule of $\mathrm{H}_{2} \mathrm{O}$.
(B) Two molecules of $\mathrm{H}_{2}$ will produce two molecules of $\mathrm{H}_{2} \mathrm{O}$.
(C) One molecule of $\mathrm{O}_{2}$ will react with 2 molecules of $\mathrm{H}_{2}$
(D) One molecule of $\mathrm{O}_{2}$ will produce 2 molecules of $\mathrm{H}_{2} \mathrm{O}$.
5. Which of the following is true in a balanced chemical reaction?
(A) Atoms are conserved.
(B) Mass is conserved.
(C) A and B are both correct.
(D) Nothing is conserved.
6. What are the coefficients of the following reaction when correctly balanced?

$$
\ldots \mathrm{N}_{2}+\ldots \mathrm{H}_{2} \rightarrow \ldots \mathrm{NH}_{3}
$$

(A) 1, 3, 2
(B) 1, 2, 3
(C) $1,1,1$
(D) 2, 1, 3
7. First balance the equation below. Then, determine what is the coefficient for hydrogen fluoride?
$ـ_{-} \mathrm{SiO}_{2}+\ldots \mathbf{H F} \quad \rightarrow \quad \mathrm{SiF}_{4}+{ }_{-} \mathrm{H}_{2} \mathrm{O}$
(A) 1
(B) 2
(C) 3
(D) 4
8. What are the coefficients of the following reaction when correctly balanced?

$$
\ldots \mathrm{CaCl}_{2}+\ldots \mathrm{Na}_{3} \mathrm{PO}_{4} \rightarrow \ldots \mathrm{Ca}_{3}\left(\mathrm{PO}_{4}\right)_{2}+\ldots \mathrm{NaCl}
$$

(A) $1,1,1,1$
(B) $3,2,1,6$
(C) 1, 2, 3, 4
(D) 2, 3, 1, 6
9. What are the coefficients of the following reaction when correctly balanced?

$$
\ldots \mathrm{H}_{2} \mathrm{CO}_{3} \rightarrow \ldots \mathrm{H}_{2} \mathrm{O}+\ldots \mathrm{CO}_{2}
$$

(A) $1,1,1$
(B) 1, 2, 3
(C) $1,2,2$
(D) 2, 2, 1
10. What are the coefficients of the following reaction when correctly balanced?
$\qquad$ $\mathrm{Pb}\left(\mathrm{NO}_{3}\right)_{2}+\ldots \ldots \mathrm{KI} \rightarrow \ldots \mathrm{PbI}_{2}+\ldots \mathrm{KNO}_{3}$
(A) 2, 1, 2, 1
(B) $1,1,1,1$
(C) $1,2,2,1$
(D) $1,2,1,2$

