8th Grade Science – Week 26

Questions 1-2 refer to one of four answers shown below.

(A) Combination
(B) Decomposition
(C) Single Replacement
(D) Double Replacement

1. What is the type of reaction for the following: $Zn + CuCl_2 \rightarrow Cu + ZnCl_2$

2. What is the type of reaction for the following: $2\ Na + O_2 \rightarrow 2\ NaCl$

$$Pb(NO_3)_2 + KI \rightarrow PbI_2 + KNO_3$$

3. Given the chemical equation above, what are the coefficients when it is completely balanced?
   (A) 1, 2, 2, 1
   (B) 1, 3, 1, 3
   (C) 1, 2, 1, 2
   (D) 1, 3, 3, 1

4. What is the molar mass for potassium carbonate, MgO?
   (A) 16 g/mol
   (B) 24 g/mol
   (C) 32 g/mol
   (D) 40 g/mol

5. What is the molar mass of $Mg_3(PO_4)_2$?
   (A) 113 g/mol
   (B) 121 g/mol
   (C) 167 g/mol
   (D) 262 g/mol

6. What is the mass of 2.5 moles of O_2?
   (A) 80 g
   (B) 60 g
   (C) 40 g
   (D) 20 g

7. How many moles are there in 4 grams of propane, CH_4?
   (A) 1.00 moles
   (B) 0.50 moles
   (C) 0.25 moles
   (D) 0.10 moles

8. What is the total number of atoms in 2.00 moles of iron?
   (A) 63.5 atoms
   (B) 3.0×10^{23} atoms
   (C) 6.0×10^{23} atoms
   (D) 1.2×10^{24} atoms

9. What is the total number of moles of carbon dioxide gas in 9.03×10^{23} molecules?
   (A) 3.0 moles
   (B) 2.0 moles
   (C) 1.5 moles
   (D) 6.02×10^{23} moles

10. What is the mass of 3.0×10^{23} molecules of H_2O?
   (A) 5 g
   (B) 10 g
   (C) 15 g
   (D) 20 g

11. If a piece of aluminum has a mass of 54 grams, how many atoms of aluminum are present?
   (A) 1.2×10^{24} atoms
   (B) 2.4×10^{24} atoms
   (C) 2 atoms
   (D) 4 atoms

12. What is the percent by mass of **sodium** in sodium chloride, NaCl?
   (A) 18%
   (B) 27 %
   (C) 39%
   (D) 48%

$$C_3H_8 + 5\ O_2 \rightarrow 3\ CO_2 + 4\ H_2O$$

13. In the combustion reaction above, if there are 3 moles of propane, C_3H_8, how many moles of water is produced?
   (A) 3 moles
   (B) 6 moles
   (C) 12 moles
   (D) 18 moles

Questions 14-15 refer to the following chemical reaction.

$$2\ H_2 + O_2 \rightarrow 2\ H_2O$$

14. If 4 moles of hydrogen gas (H_2) is placed in a sealed container with oxygen gas, how many moles of oxygen gas will it react with?
    (A) 1 moles
    (B) 2 moles
    (C) 4 moles
    (D) 8 moles

15. With your answer of moles from the previous question, how many grams of oxygen gas (O_2) will react with the 4 moles of hydrogen gas?
    (A) 16 g
    (B) 32 g
    (C) 48 g
    (D) 64 g