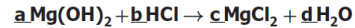


1. The coefficients necessary to balance the equation correctly are –

- A) a = 2, b = 1, c = 1, d = 2
 B) a = 1, b = 2, c = 1, d = 2
 C) a = 1, b = 1, c = 1, d = 1
 D) a = 2, b = 2, c = 1, d = 1

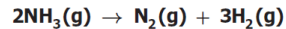


2. Iodine-131 is a radioactive isotope with a half-life of 8 days. How many grams of a 64 g sample of iodine-131 will remain at the end of 24 days?

- A) 56 g
 B) 48 g
 C) 32 g
 D) 8 g

3. The reaction for the decomposition of ammonia (NH_3) can be written as shown. If a student starts with 21.7 g of NH_3 how many grams of hydrogen (H_2) gas will be produced by the reaction?

- A 1.28 g
 B 2.55 g
 C 3.85 g
 D 32.5 g



4. What is the volume occupied by 51.0 g of ammonia (NH_3) gas at STP?

- F 0.439 L
 G 22.8 L
 H 67.2 L
 J 91.9 L

5. When 80 g of sodium hydroxide, NaOH , are dissolved in enough water to make 500 mL of solution, the molarity of the solution is –

- A 1 M
 B 2 M
 C 4 M
 D 8 M

6. If the pH of a solution is 4, what is the pOH?

- F 0
 G 6
 H 7
 J 10

7. What is the empirical formula of the compound with the molecular formula C_6H_{12} ?

- A CH
 B CH_2
 C CH_4
 D C_2H_6

8. Which of these is most likely to form between elements transferring electrons to form oppositely charged particles?

- F A metallic bond
 G A hydrogen bond
 H A covalent bond
 J An ionic bond

9. The table shows the specific heat capacity of four substances. For an equal mass of each substance, which one will require the *least* amount of heat to raise its temperature from 20°C to 30°C ?

Substance	Heat Capacity $\frac{\text{J}}{\text{g} \cdot ^\circ\text{C}}$
Aluminum	0.900
Glass	0.50
Carbon dioxide	0.843
Water	4.18

- A) Aluminum
 B) Glass
 C) Carbon dioxide
 D) Water

10. Which graph best shows the relationship between the volume of a gas and its temperature as the gas pressure remains constant?

