DVHS Honors Chemistry
Practice Quiz-2: Stoichiometry

1. Which of the following statements is true?

I. The molar mass of $CaCO_3$ is 100.1 g/mol
II. 50 g of $CaCO_3$ contains 9×10^{23} oxygen atoms.
III. A 200 g sample of $CaCO_3$ contains 2 moles of $CaCO_3$

a. I only b. II only c. III only d. I and III only e. I, II, and III

2. The reaction of 7.8 g benzene (C_6H_6), with excess HNO_3 resulted in 0.90 g of H_2O. What is the percentage yield?

$$C_6H_6 + HNO_3 \rightarrow C_6H_5NO_2 + H_2O$$

a. 100% b. 90% c. 50% d. 12% e. 2%

3. What is the total mass of products formed when 16 grams of CH4 is burned with excess oxygen?

a. 32 g b. 36 g c. 44 g d. 62 g e. 80 g

4. Write a balanced equation for the combustion of propane [C_3H_8]. When balanced, the equation indicates that ___ moles of O_2 are required for each mole of C_3H_8.

a. 1.5 b. 3 c. 3.5 d. 5 e. 8

5. Balance the following equation:

___NH_3 + ___O_2 → ___NO_2 + ___H_2O

The balanced equation shows that 1.00 mole of NH_3 requires ___ mole(s) of O_2

a. 0.57 b. 1.25 c. 1.33 d. 1.75 e. 3.5

6. Calculate the mass of hydrogen formed when 27 g of aluminum reacts with excess hydrochloric acid according to the balanced equation below.

$$2\ Al + 6\ HCl \rightarrow 2\ AlCl_3 + 3\ H_2$$

a. 1.5 g b. 2.0 g c. 3.0 g d. 6.0 g e. 12 g

7. The balanced chemical equation for the reaction that is used to fuel rockets is

$$N_2H_2 + H_2O \rightarrow N_2 + 2H_2O.$$

How many grams of N_2H_2 are needed to produce 10.0 mol nitrogen gas?

a. 600. g b. 300 g c. $3.0X10^2$ g d. 300. g e. 600 g

8. Determine the mole ratio necessary to convert mole of aluminum to moles of aluminum chloride. The unbalanced equation is __Al + __Cl_2 → __$AlCl_3$

a. 2:3 b. 2:2 c. 3:2 d. 1:3 e. 3:1

9. What is the molar mass of $Zn(C_2H_3O_2)_2$?

a. 392.8g/mol b. 142.9g/mol c. 361g/mol d. 183.5 g/mol

10. __ B_2H_6 + __ O_2 → __ HBO_2 + __ H_2O
What mass of O_2 will be needed to burn 36.1 g of B_2H_6?

a. 13.8 g O_2 b. 3.86 mol of O_2 c. 124 g O_2 d. 124.0 g O_2

Practice Quiz-2: Key

1. **E**
2. **C**
3. **E**
4. **D** Balanced equation: $C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$
5. **D** Balanced equation: $4NH_3 + 7O_2 \rightarrow 4NO_2 + 6H_2O$
6. **C**
7. **D**
8. **B**
9. **D**
10. **C**