

Name: _____ Class: _____ Date: _____

ID: A

Chapter 9 Exam

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- ____ 1. What is the study of the mass relationships among reactants and products in a chemical reaction?
 a. reaction stoichiometry c. electron configuration
 b. composition stoichiometry d. periodic law
- ____ 2. Which of the following would *not* be studied in the branch of chemistry called stoichiometry?
 a. the mole ratio of aluminum and chlorine in aluminum chloride
 b. the amount of energy required to break the ionic bonds in calcium fluoride
 c. the mass of carbon produced when a known mass of sucrose decomposes
 d. the number of moles of hydrogen that reacts completely with a known quantity of oxygen
- ____ 3. In most chemical reactions the amount of product obtained is
 a. equal to the theoretical yield. c. more than the theoretical yield.
 b. less than the theoretical yield. d. more than the percentage yield.
- ____ 4. To balance a chemical equation, it may be necessary to adjust the
 a. coefficients. c. formulas of the products.
 b. subscripts. d. number of products.
- ____ 5. For the reaction represented by the equation $\text{Cl}_2 + 2\text{KBr} \rightarrow 2\text{KCl} + \text{Br}_2$, calculate the percentage yield if 200. g of chlorine react with excess potassium bromide to produce 410. g of bromine.
 a. 73.4% c. 91.0%
 b. 82.1% d. 98.9%
- ____ 6. Given the equation $3\text{A} + 2\text{B} \rightarrow 2\text{C}$, the starting mass of A, and its molar mass, and you are asked to determine the moles of C produced, your first step in solving the problem is the multiply the given mass of A by
 a. $\frac{2 \text{ mol C}}{3 \text{ mol A}}$ c. $\frac{1 \text{ mol A}}{\text{molar mass A}}$
 b. $\frac{3 \text{ mol A}}{2 \text{ mol C}}$ d. $\frac{\text{molar mass A}}{1 \text{ mol A}}$
- ____ 7. When the limiting reactant in a chemical reaction is completely used, the
 a. excess reactants begin combining. c. reaction speeds up.
 b. reaction slows down. d. reaction stops.
- ____ 8. The Haber process for producing ammonia commercially is represented by the equation $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightarrow 2\text{NH}_3(\text{g})$. To completely convert 9.0 mol hydrogen gas to ammonia gas, how many moles of nitrogen gas are required?
 a. 1.0 mol c. 3.0 mol
 b. 2.0 mol d. 6.0 mol
- ____ 9. For the reaction represented by the equation $\text{SO}_3 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{SO}_4$, calculate the percentage yield if 500. g of sulfur trioxide react with excess water to produce 575 g of sulfuric acid.
 a. 82.7% c. 91.2%
 b. 88.3% d. 93.9%

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