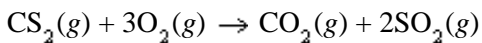


Stoich Practice Test

Multiple Choice

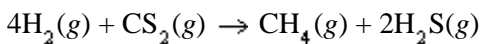
Identify the choice that best completes the statement or answers the question.

- _____ 1. Which of the following is true about the reaction shown below?
$$\text{C}_5\text{H}_{12}(l) + 8\text{O}_2(g) \rightarrow 5\text{CO}_2(g) + 6\text{H}_2\text{O}(g)$$
 - 9 moles of reactants chemically change into 11 moles of product.
 - 9 grams of reactants chemically change into 11 grams of product.
 - 9 liters of reactants chemically change into 11 liters of product.
 - 9 atoms of reactants chemically change into 11 atoms of product.
- _____ 2. At STP, how many liters of oxygen are required to react completely with 3.6 liters of hydrogen to form water?
$$2\text{H}_2(g) + \text{O}_2(g) \rightarrow 2\text{H}_2\text{O}(g)$$
 - 1.8 L
 - 3.6 L
 - 2.0 L
 - 2.4 L
- _____ 3. Which type of stoichiometric calculation does not require the use of the molar mass?
 - mass-mass problems
 - mass-volume problems
 - mass-particle problems
 - volume-volume problems
- _____ 4. The equation below shows the decomposition of lead nitrate. How many grams of oxygen are produced when 11.5 g NO_2 is formed?
$$2\text{Pb}(\text{NO}_3)_2(s) \rightarrow 2\text{PbO}(s) + 4\text{NO}_2(g) + \text{O}_2(g)$$
 - 1.00 g
 - 2.00 g
 - 2.88 g
 - 32.0 g
- _____ 5. Mercury can be obtained by reacting mercury(II) sulfide with calcium oxide. How many grams of calcium oxide are needed to produce 36.0 g of Hg?
$$4\text{HgS}(s) + 4\text{CaO}(s) \rightarrow 4\text{Hg}(l) + 3\text{CaS}(s) + \text{CaSO}_4$$
 - 1.80 g
 - 7.56 g
 - 10.1 g
 - 13.4 g
- _____ 6. When two substances react to form products, the reactant which is used up is called the _____.
 - determining reagent
 - limiting reagent
 - excess reagent
 - catalytic reagent
- _____ 7. Identify the limiting reagent and the volume of CO_2 formed when 11 L CS_2 reacts with 18 L O_2 to produce CO_2 gas and SO_2 gas at STP.



- a. CS_2 ; 5.5 L CO_2
- b. O_2 ; 6.0 L CO_2
- c. CS_2 ; 11 L CO_2
- d. O_2 ; 27 L CO_2

- ___ 8. Methane and hydrogen sulfide form when hydrogen reacts with carbon disulfide. Identify the excess reagent and calculate how much remains after 36 L of H_2 reacts with 12 L of CS_2 .

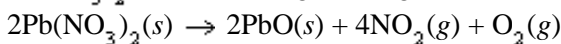


- a. 3 L CS_2
- b. 6 L CS_2
- c. 9 L CS_2
- d. 12 L H_2

- ___ 9. When an equation is used to calculate the amount of product that will form during a reaction, then the value obtained is called the ___.

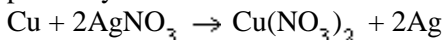
- a. actual yield
- b. percent yield
- c. theoretical yield
- d. minimum yield

- ___ 10. Lead nitrate can be decomposed by heating. What is the percent yield of the decomposition reaction if 9.9 g $\text{Pb}(\text{NO}_3)_2$ are heated to give 5.5 g of PbO ?



- a. 44%
- b. 56%
- c. 67%
- d. 82%

- ___ 11. In a particular reaction between copper metal and silver nitrate, 12.7 g Cu produced 38.1 g Ag . What is the percent yield of silver in this reaction?



- a. 56.7%
- b. 77.3%
- c. 88.2%
- d. 176%

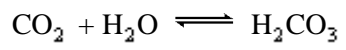
- ___ 12. Why does a higher concentration make a reaction faster?

- a. Higher concentration increases the frequency of collisions.
- b. Higher concentration increases the total energy of collisions.
- c. Higher concentration decreases the activation energy of the overall reaction.
- d. Higher concentration decreases the energy needed for a collision to be effective.

- ___ 13. Why does a catalyst cause a reaction to proceed faster?

- a. A catalyst increases the frequency of collisions.
- b. A catalyst increases the total energy of collisions.
- c. A catalyst decreases the activation energy of reaction.
- d. A catalyst decreases the need for an activated complex.

- ___ 14. What is the effect of adding more water to the following equilibrium reaction?



- a. More H_2CO_3 is produced.
- b. CO_2 concentration increases.
- c. The equilibrium is pushed in the direction of reactants.
- d. There is no effect.

Stoich Practice Test Answer Section

MULTIPLE CHOICE

1. ANS: A PTS: 1 DIF: L2 REF: p. 386 | p. 387
OBJ: 12.1.2 Describe the quantities you can use to interpret a balanced chemical equation.
BLM: application
2. ANS: A PTS: 1 DIF: L2 REF: p. 394 | p. 396
OBJ: 12.2.2 Explain the general procedure for solving a stoichiometric problem.
BLM: analysis
3. ANS: D PTS: 1 DIF: L2 REF: p. 396
OBJ: 12.2.2 Explain the general procedure for solving a stoichiometric problem.
BLM: comprehension
4. ANS: B PTS: 1 DIF: L2 REF: p. 392 | p. 393
OBJ: 12.2.1 Explain how mole ratios are used in chemical calculations.
BLM: analysis
5. ANS: C PTS: 1 DIF: L2 REF: p. 392 | p. 393
OBJ: 12.2.1 Explain how mole ratios are used in chemical calculations.
BLM: analysis
6. ANS: B PTS: 1 DIF: L1 REF: p. 401
OBJ: 12.3.1 Explain how the amount of product in a reaction is affected by an insufficient quantity of any of the reactants.
BLM: comprehension
7. ANS: B PTS: 1 DIF: L2 REF: p. 402
OBJ: 12.3.1 Explain how the amount of product in a reaction is affected by an insufficient quantity of any of the reactants.
BLM: analysis
8. ANS: A PTS: 1 DIF: L2 REF: p. 401
OBJ: 12.3.1 Explain how the amount of product in a reaction is affected by an insufficient quantity of any of the reactants.
BLM: analysis
9. ANS: C PTS: 1 DIF: L1 REF: p. 405
OBJ: 12.3.2 Explain what the percent yield of a reaction measures.
BLM: knowledge
10. ANS: D PTS: 1 DIF: L3 REF: p. 406 | p. 408
OBJ: 12.3.2 Explain what the percent yield of a reaction measures.
BLM: analysis
11. ANS: C PTS: 1 DIF: L3 REF: p. 406 | p. 408
OBJ: 12.3.2 Explain what the percent yield of a reaction measures.
BLM: analysis
12. ANS: A PTS: 1 DIF: L2 REF: p. 598
OBJ: 18.1.2 Identify four factors that influence the rate of a chemical reaction.
BLM: comprehension
13. ANS: C PTS: 1 DIF: L2 REF: p. 600
OBJ: 18.1.2 Identify four factors that influence the rate of a chemical reaction.
BLM: comprehension
14. ANS: A PTS: 1 DIF: L2 REF: p. 614
OBJ: 18.3.2 Identify the three stresses that can cause a change in the equilibrium position of a chemical system.
BLM: application