Kingdom of Saudi Arabia
Ministry of Education
Taibah University
Unified Scientific Track

Studetn Name:
Student ID:
Section No.:

INTRODUCTION TO CHEMISTRY (CHEM 101)

Assessment on Chapter 04 - Topic 13

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

The molar masses: C_3H_8 = 44.0, O_2 = 32.0, CO_2 = 44.0, H_2O = 18.0.

10 mol of O_2 with an excess of C_3H_8 should produce …… mol of CO_2.

❑ a. 3 ❑ b. 4 ❑ c. 5 ❑ d. 6

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

The molar masses: C_3H_8 = 44.0, O_2 = 32.0, CO_2 = 44.0, H_2O = 18.0.

44.0 g of C_3H_8 with an excess of O_2 yields ……. g of CO_2.

❑ a. 44.0 ❑ b. 88.0 ❑ c. 132 ❑ d. 176

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

The molar masses: C_3H_8 = 44.0, O_2 = 32.0, CO_2 = 44.0, H_2O = 18.0.

A yield of 66 g of CO_2 should also yield …… g of H_2O.

❑ a. 18 ❑ b. 36 ❑ c. 54 ❑ d. 72

4. $4\ Al + 3\ O_2 \rightarrow 2Al_2O_3$

108 g of Al needs ……. g of O_2 without either one being a limiting reactant.

❑ a. 96.0 ❑ b. 102.0 ❑ c. 108.0 ❑ d. 114.0

5. $4\ Al + 3\ O_2 \rightarrow 2\ Al_2O_3$

54.0 g of Al with an excess of O_2 yields ……. g of Al_2O_3.

❑ a. 102.0 ❑ b. 204.0 ❑ c. 76.5 ❑ d. 51.0

6. $4\ Al + 3\ O_2 \rightarrow 2\ Al_2O_3$

To make 51.0 g of Al_2O_3, we need …… g of Al.

❑ a. 108.0 ❑ b. 51.0 ❑ c. 27.0 ❑ d. 20.0

7. Stoichiometry is a comparison of quantities in reactions.

❑ a. True ❑ b. False

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

If we started with 2 mol of C_3H_8 and 8 mol of O_2, C_3H_8 is the limiting reactant.

❑ a. True ❑ b. False

9. Percent yield $= \frac{Theoretical\ yield}{Actual\ yield}\ x\ 100$

❑ a. True ❑ b. False

10. The mass of a reactant cannot be compared to the mass of a product without changing the masses to moles.

❑ a. True ❑ b. False

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INTRODUCTION TO CHEMISTRY (CHEM 101)

Assessment on Chapter 04 - Topic 14

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1. What is the unit for "molarity"?

❑ a. g/L ❑ b. mol/L ❑ c. g/mol ❑ d. L/mol

2. The molarity of a solution is defined as the number of …….

❑ a. moles of solute per liter of solution.
❑ b. moles of solute per kg of solution.
❑ c. grams of solute per liter of solution.
❑ d. moles of solute per kg of solvent.

3. What is the molarity of a KNO_3 solution containing 2.45 mol KNO_3 in 500 mL of solution?

❑ a. 0.049 M ❑ b. 204 M ❑ c. 2.45 M ❑ d. 0.500 M ❑ e. 4.90 M

4. What is the molarity of 2.0 moles of glucose in 4.0 L of glucose solution?

❑ a. 0.25 M ❑ b. 0.50 M ❑ c. 0.75 M ❑ d. 1.00 M

5. In aqueous solutions, water is the solute.

❑ a. True ❑ b. False

6. If 29.25 g NaCl are dissolved in 1 L of solution, then the solution has a molarity of 0.5 M.

❑ a. True ❑ b. False

7. 1 L of a 12 M solution is diluted to 2 L. So, its molarity becomes 6 M.

❑ a. True ❑ b. False

8. Which of the following aqueous solutions will be a strong electrolyte?

❑ a. strong base (KOH) in water
❑ b. ammonia (NH_3) in water
❑ c. ethanol (C_2H_5OH) in water
❑ d. sugar ($C_{12}H_{22}O_{11}$) in water

9. Which of the following aqueous solutions will be a strong electrolyte?

❑ a. strong base (KOH) in water
❑ b. ammonia (NH_3) in water
❑ c. ethanol (C_2H_5OH) in water
❑ d. sugar ($C_{12}H_{22}O_{11}$) in water

10. Which of the following solutions can be classified as non-electrolyte?

❑ a. table salt (NaCl) in water
❑ b. ammonia (NH_3) in water
❑ c. acetic acid (CH_3COOH) in water
❑ d. sugar ($C_{12}H_{22}O_{11}$) in water

11. Which of the following aqueous solutions would conduct electricity?

❑ a. $AgNO_3$
❑ b. $C_{12}H_{22}O_{11}$ (sucrose)
❑ c. CH_3CH_2OH (ethanol)
❑ d. all of them
❑ e. none of them

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INTRODUCTION TO CHEMISTRY (CHEM 101)

Assessment on Chapter 04 - Topic 15

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1. Neutralization reactions always produce ……

❑ a. Acids ❑ b. Water ❑ c. Bases ❑ d. Salt ❑ e. Both water and salt

2. The oxidation number of an element in the free or uncombined state is always …….

❑ a. 0 ❑ b. +1 ❑ c. –1 ❑ d. the same as its ionic charge

3. A substance is reduced if it ……..

❑ a. lose electrons. ❑ b. gains hydrogen atoms.

❑ c. gains electrons. ❑ d. None of these

4. All of the following can have an oxidation number of +4 except ……..

❑ a. carbon ❑ b. calcium

❑ c. silicon ❑ d. Lead

5. Oxidation is shown by which of these changes in oxidation states?

❑ a. 0 to 2+ ❑ b. 5+ to 3+ ❑ c. 3+ to 0 ❑ d. 0 to 2-

6. Which of the following shows an oxidation?

❑ a. O_2 to O^{2-} ❑ b. Cl_2 to Cl^{1-} ❑ c. N^{3+} to N_2 ❑ d. H_2 to H^{1+}

7. If one element is oxidized, another one is reduced.

❑ a. True ❑ b. False

8. In the reaction $N_2 + O_2 \rightarrow N_2O_4$, nitrogen is reduced.

❑ a. True ❑ b. False