

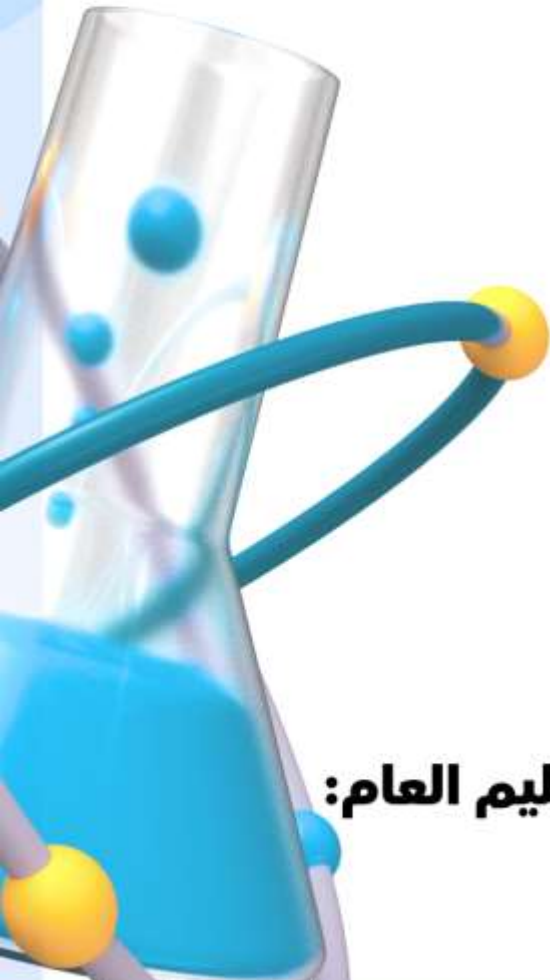
الإدارة المركزية للتعليم العام
مكتب تنمية مادة العلوم



CHEMISTRY

2nd secondary
first term

HOME PERFORMANCE



إعداد:

أ. سامح منصور

أ. عبدالله عبدالواحد

مستشار مادة العلوم:

د. عزيزة رجب خليفة

رئيس الإدارة المركزية للتعليم العام:

د. هالة عبدالسلام خفاجي

2026

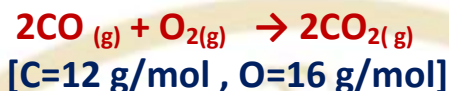
week

2

Home performance (Week 2)

Q1/ choose the correct answer:-

1- At STP, calculate the volume of CO₂ gas produced by mixing 20 g of CO gas with an excess amount of oxygen gas according to the following equation:



- (a) 45 L
- (b) 8 L
- (c) 23 L
- (d) 16 L

2-At 25°C and 1atm, a gas occupies a volume of 4L , How many moles are there?

- (a) 0.18 moles of gas molecules
- (b) 0.93 moles of gas molecules
- (c) 0.17 moles of gas molecules
- (d) 8.96 moles of gas molecules

3-How many grams of oxygen gas are necessary to react completely with 2.93×10^{21} atoms of magnesium to yield magnesium oxide?



- (a) 2.68×10^{-2} g
- (b) 6.18×10^{-4} g
- (c) 1.56×10^{-1} g
- (d) 7.78×10^{-2} g

4- Propane (C₃H₈) burns completely in excess amount of oxygen (O₂) according to the following equation:



-If 11.0 grams of C₃H₈ is completely combusted at room temperature , then the volume of CO₂ gas produced is

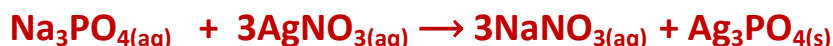


- (a) 30 cm³
- (b) 30 L
- (c) 18 L
- (d) 55L



5- Phosphate radical is detected in its sodium salt by silver nitrate solution

According to the following equation:

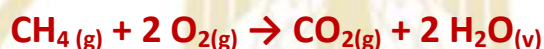


-if you start with a pure sample of the sodium Phosphate salt weighs 5 grams, calculate the mass of formed precipitate?

[Na_3PO_4 =164 g/mol, AgNO_3 =170g/mol, NaNO_3 =85g/mol, Ag_3PO_4 =419g/mol]

- (a) 12.77 g
- (b) 12.32 g
- (C) 1.95g
- (d) 5.00 g

6- Methane gas reacts with oxygen according to the following equation:

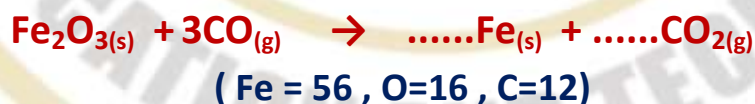


- If 60 g of oxygen gas is added to 20 gm of methane gas in a closed container ,
Calculate the total mass of gases and vapors at the end of reaction?

(C=12 g/mol, H=1 g/mol , O =16 g/mol)

- (a) 100 g
- (b) 46.25 g
- (C) 5 g
- (d) 80 g

7- Balance the chemical equation for reduction of iron III oxide by carbon monoxide , then calculate the volume of carbon dioxide gas evolved at 273°K and 1 atm from the reaction of 1.6 gm of iron III oxide with 1.68 g of carbon monoxide.

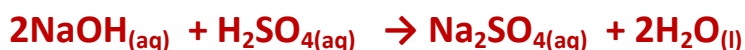


- (a) 0.672
- (b) 1.344
- (C) 0.224
- (d) 67.2



8-In the neutralization reaction between sodium hydroxide and sulphuric acid

According to the equation: -



-If 80 gm of sodium hydroxide is added to 49 gm of sulfuric acid, then which of The following exists in water at the end of reaction?

- (a) Sodium hydroxide and sodium sulphate
- (b) Sulphuric acid and sodium sulphate
- (c) Sodium hydroxide and sulphuric acid
- (d) Sodium hydroxide , sodium sulphate and sulphuric acid

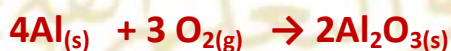
9- Ammonia gas (NH_3) is produced by the reaction of nitrogen (N_2) and Hydrogen (H_2):

-How many grams of nitrogen gas are required to prepare 72 liters of ammonia at STP?

(N=14 g/mol, H=1 g/mol)

- (a) 35.99 g
- (b) 33.60 g
- (c) 42.00g
- (d) 44.99 g

10- How many grams of Aluminum metal will be completely oxidized by 44.8L of oxygen at STP according to the following equation?



[Al=27, O = 16]

- (a) 54 gm
- (b) 108 gm
- (c) 27 gm
- (d) 72 gm



الإدارة المركزية للتعليم العام
مكتب تنمية مادة العلوم



CHEMISTRY

2nd secondary
first term

WEEKLY ASSESSMENTS



إعداد:

أ. سامح منصور

أ. عبدالله عبدالواحد

مستشار مادة العلوم:

د. عزيزة رجب خليفة

رئيس الإدارة المركزية للتعليم العام:

د. هالة عبدالسلام خفاجي

2026

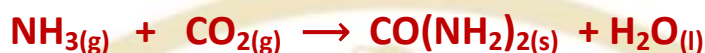
week

2

Weekly assessment (Week-2)

Question (1):-

Urea is an important fertilizer, prepared in industry from the reaction of ammonia (NH_3) gas and carbon dioxide gas (CO_2) according to the unbalanced equation below:



- In a large batch reaction, 6.0×10^4 grams of ammonia (NH_3) are mixed with 1.1×10^5 grams of carbon dioxide (CO_2).

1. Balance the chemical equation.

2. Determine the limiting reactant for this reaction.

3. Calculate the yield (in kilograms) of urea [$\text{CO}(\text{NH}_2)_2$] that can be produced.

4. Calculate the mass (in kilograms) of the excess reactant remaining after the reaction is complete.

(Atomic Masses: N=14.0 g/mol, C=12.0 g/mol, O=16.0 g/mol, H=1.0 g/mol)

Question (2):-

A student conducts an experiment to synthesize iron (III) oxide (Fe_2O_3) by reacting iron metal (Fe) with oxygen gas (O_2) at high temperature.

According to the balanced equation: $4\text{Fe}_{(s)} + 3\text{O}_{2(g)} \rightarrow 2\text{Fe}_2\text{O}_{3(s)}$

- The student starts with 11.17 grams of solid iron (Fe) and allows it to react with 4.48 liters of oxygen gas (O_2) measured at 25°C and 1 atm.

[Fe=55.85 g/mol, O=16.00 g/mol]

1-Determine the limiting reactant for this reaction.

2-Calculate the expected yield (in grams) of Fe_2O_3

3-Calculate the mass in grams of the limiting reactant that is needed to Completely react with the remaining amount of the other reactant.



Question (3):-

Given that 7.3 grams of hydrochloric acid is necessary for the complete reaction with a sample of 12.5 gram calcium carbonate, according to the following unbalanced equation:



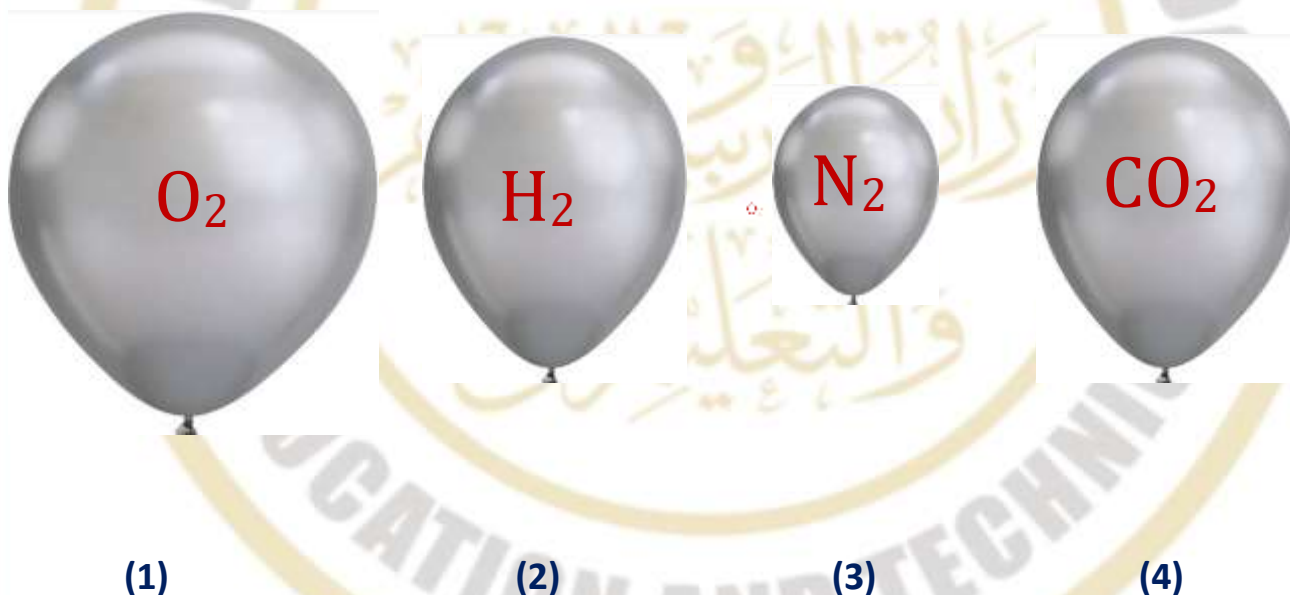
1-Determine whether the sample is pure or impure.

2-Calculate the volume of evolved carbon dioxide gas at 298°K and 760 mmHg

3-Calculate the mass of impurities in the sample if it found.

Question (4):-

-In front of you four balloons contain different gases under the same conditions of temperature and pressure, study the figure well then answer.



1-Determine balloons those contains the same number of gas molecules.

2- Given that volume of balloon (2) double that of the balloon (3) , determine the ratio between number of molecules and number of atoms in the two balloons respectively, explain your answer?



3- Given that volume of balloon (1) is 4.48 L at 25° C and 760 mmHg calculate how many liters of gas in balloon (2) is required to completely react with the gas in balloon (1)?

.....

Question (5):-

- Ammonia gas (NH₃) is produced by the reaction of nitrogen (N₂) and Hydrogen (H₂):

-How many grams of nitrogen gas are required to prepare 72 liters of ammonia at STP? (N=14 g/mol, H=1 g/mol)

.....

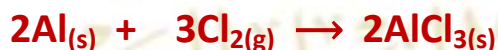
.....

.....

.....

Question (6):-

- Consider the reaction between aluminum metal (Al) and chlorine gas (Cl₂) to produce aluminum chloride (AlCl₃).according to the following equation :



-A chemist mixes 20 grams of aluminum (Al) with 30 grams of chlorine gas (Cl₂) in a reaction vessel.

1-Identify the Limiting Reactant.

.....

.....

2-Calculate the mass of the yield (in grams).

.....

.....

3-Calculate the mass (in grams) of the excess reactant that remains after The reaction is complete.

(Al=27 g/mol, Cl=35.5 g/mol)

.....

.....

.....

.....

