



— to next page —

UGANDA NATIONAL EXAMINATIONS BOARD
UGANDA ADVANCED CERTIFICATE OF EDUCATION
NOVEMBER - DECEMBER, 2025

Do not
write
in this
margin

Candidate's Name KASOZI HENRY NAMUNSWA / 0709898420

Signature KHNDZ (PCAB ACADEMY)

Subject CHEMISTRY Paper code

Random No.

Personal Number

UACE

Do not
write
in this
margin

MOLE CONCEPT (III)

CALCULATING VOLUMES OF SUBSTANCES FROM EQUATIONS

Key;

When calculating for volumes of substances consider:

Units given in the item; either RTP or STP

These values can be given in different units i.e cm^3 / litres / dm^3

For example; STP (Standard Temperature and Pressure) -

1 mole of a gas occupies 22.4 dm^3 at STP

1 mole of a gas occupies 22400 cm^3 at STP

For RTP (Room temperature and Pressure) -

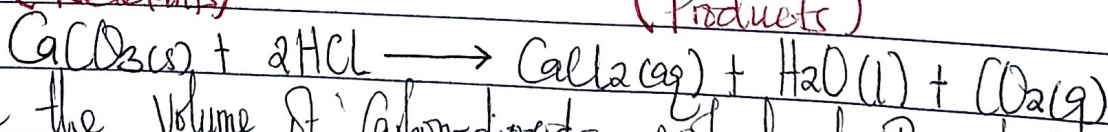
1 mole of a gas occupies 24 dm^3

1 mole of a gas occupies 24000 cm^3

For example; Calcium carbonate reacted with hydrochloric acid according to the following equation

(Reactants)

(Products)



Calculate the volume of Carbon-dioxide evolved at Room temperature when 15.9 g of calcium carbonate was reacted with excess acid.

(1 mole of a gas occupies 22.4 dm^3)

(evolve) means to give off / produce / Release.

Step; The molar mass of Reactant is calculated for;

The reactant calculated for; is that whose mass is given in the item; i.e 15.9 g of calcium carbonate

$$\begin{aligned} \text{Molar mass of } \text{CaCO}_3 &= (1 \times 40) + (1 \times 12) + (3 \times 16) \\ &= 40 + 12 + 48 \\ &= 100 \text{ g} \end{aligned}$$



UGANDA NATIONAL EXAMINATIONS BOARD
UGANDA ADVANCED CERTIFICATE OF EDUCATION
NOVEMBER - DECEMBER, 2025

- to next page -

Candidate's Name KACIZI HENRY NAMUNSWA / 0789898420

Signature KHND3 (PCAB ACADEMY)

Subject Paper code/.....

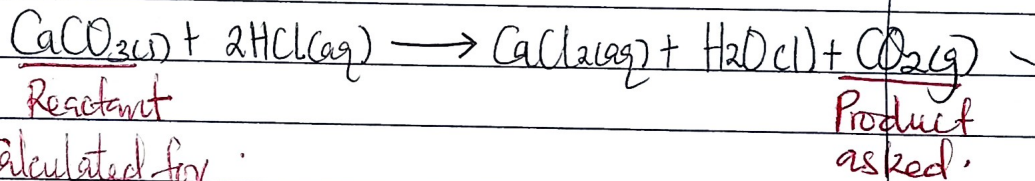
Random No.					
Personal Number					

UACE

Do not write in this margin

Step 2; The molar mass of Reactant calculated for is compared with the value given at STP / RTP considering the item set.

ie, 100g of CaCO_3 evolved 22.4dm^3 from the equation.



1 mole of CaCO_3 evolved 1 mole of CO_2

1 x 100g of CaCO_3 evolved 1 x 22.4dm^3 of CO_2

15.9g of CaCO_3 evolve $\left(\frac{22.4\text{dm}^3 \times 15.9}{100} \right) \text{dm}^3$ of CO_2

$= 3.5616\text{dm}^3$ of CO_2

↓
This is the value asked to be compared for in the item.

-For more- Find Education support at
 Pass Chemistry and Biology Academy
 (PCAB ACADEMY)

TO GOD BE THE GLORY