Class:- VIII

Weight - Volume and Volume - Volume Relationship

Teaching Task

JEE Main Level Questions

Q1) Ans:- 3.

Solution:- $N_2 + 3H_2 \longrightarrow 2NH_3$.

28. $3 \times 2 \times 1 = 6$

Given $N_2 = 2.8g$.

1 mole of $N_2 = 28g$.

$1 \longrightarrow 28g$

$x \longrightarrow 2.8g$.

$x = \frac{2.8}{28} = 0.1$ moles.

For 1 mole N_2 requires 3 moles of H_2.

$N_2 = 0.1$ then $H_2 = 0.3$ moles.

One mole of any gas at STP occupies 22.4 litres.

H_2 $\quad 1 \longrightarrow 22.4$ litres.

$0.3 \longrightarrow x$

$x = 22.4 \times 0.3$

$= 6.72$ litres.

Q2) Ans:- 2

Solution:- $Na_2CO_3 + 2HCl \longrightarrow 2NaCl + CO_2 + H_2O$.

For 1 mole of Na_2CO_3, 1 mole CO_2 liberated.

Given Na_2CO_3 weight = 2.12 grams.

1 mole $Na_2CO_3 = 2(23)+12+48 = 106$ gms.

1 mole $Na_2CO_3 = 106$ gms.

$1 \longrightarrow 106\ g$

$x \longrightarrow 2.12\ g$

$x = \frac{2.12}{106} = 0.02$ moles.

$Na_2CO_3 = 1$ mole then $CO_2 = 1$ mole

if Na_2CO_3 is 0.02 moles CO_2 is also 0.02 moles.

1 Mole of CO_2 occupies 22.4 litres.

$1 \longrightarrow 22.4$ litres

$0.02 \longrightarrow x$.

$x = 22.4 \times 0.02$

$= 0.448$.

Q3) Ans:- B.

Solution:- $S + O_2 \rightarrow SO_2$.

1 mole sulphur, 1 mole O_2 required.

Sulphur,

1 mole = 32 gms.

x = 2 grams

$x = \frac{2}{32} = 0.0625$ moles.

For oxygen

1 mole $\longrightarrow$ 22.4 litres.

0.0625 $\longrightarrow$ x.

$x = 1.4$ litres.

Option B) $\frac{22.414}{16} = 1.4$ litres

Q4) Ans:- 3.

Solution:-

$S + O_2 \longrightarrow SO_2$

1 mole of sulphur requires 1 mole of oxygen.

1.5 moles of sulphur requires 1.5 moles of O_2

O_2

1 $\longrightarrow$ 22.4 litres

1.5 $\longrightarrow$ x

$x = 1.5 \times 22.4$

$= 33.6$ litres

Q5) Ans:- 2

Solution:- $CO + \frac{1}{2} O_2 \rightarrow CO_2$

For 1 mole CO it produces 1 mole of CO_2

CO_2

1 mole $\rightarrow$ 22.4 litres

x $\rightarrow$ 11.207 litres

$x = \frac{11.2}{22.4} = 0.5$ moles.

CO also 0.5 moles, it occupies 11.2 litres.

Q6). Ans:- 2

Solution:- $2\,CHI_3 + 6\,Ag \rightarrow C_2H_2 + 6\,AgI$.

2 moles of iodoform produces 1 mole of acetylene

CHI_3 C_2H_2

2 $\rightarrow$ 1

0.01 $\rightarrow$ x.

$x = \frac{0.01}{2} = 0.005$ moles.

C_2H_2

1 mole $\rightarrow$ 22.4 litres.

0.005 $\rightarrow$ x.

$x = 22.4 \times 0.005 = 0.112\,L$ or $112\,mL$

Q7) Ans:- 3.

Solution:- $S + O_2 \rightarrow SO_2$

For 1 mole of S $\rightarrow$ 1 mole of O_2

For 1.5 moles of S $\rightarrow$ 1.5 moles of O_2

1.5 moles occupy 33.6 litres.

(Q8) Ans:- 3.

Solution:- $2Fe + \frac{3}{2}O_2 \rightarrow Fe_2O_3$

2 moles Fe $\rightarrow \frac{3}{2}$ moles of O_2

$2Fe = 2 \times 56 = 112$ gms $\quad \frac{3}{2}O_2 = \frac{3}{2} \times 32 = 48$ gms.

For $\frac{3}{2}O_2$ moles occupies $\frac{3}{2} \times 22.4$ litres $= 33.6$ litres.

They are giving 5.6 litres of O_2, 5.6 gms of Fe.

Iron is insufficient to react with O_2, So

limiting reagent is Fe.

$Fe_2O_3 = 2 \times 56 + 3 \times 16 = 112 + 48 = 160$ gms.

Fe		Fe_2O_3.
112	$\longrightarrow$	160
5.6	$\longrightarrow$	x

$$x = \frac{160 \times 5.6}{112} = 8 \text{ gms.}$$

Fe_2O_3

1 mole $\rightarrow$ 160 gms.

x $\rightarrow$ 8 gms

$$x = \frac{8}{160}$$

$= 0.05$ moles

(Q9) Ans:- 2

Solution:- $2NO + O_2 \rightarrow 2NO_2$

2 moles 1 mole 2 moles.

$V \propto n$ → Avagadro law.

20 ml of NO produces 20 ml of NO_2

(Q10) Ans:- 4.

Solution:- $H_2 + Cl_2 \rightarrow 2HCl$.

10 ml 12.5 ml

For 1 mole of H_2 → 2 moles of HCl.

For 10 ml of H_2 → 20 ml of HCl produced.

Advanced Level Questions

(Q11) Ans:- B, C, D.

Solution:- $NH_4Cl + NaNO_2 \rightarrow NaCl + N_2(g) + 2H_2O$

For 1 mole NH_4Cl, 1 mole $NaNO_2$ is required

But they give 0.5 moles of $NaNO_2$ & 1 mole of NH_4Cl.

So, $NaNO_2$ is limiting reagent.

For 0.5 moles of $NaNO_2$ produces 0.5 moles of N_2

0.5 moles of $N_2 = \frac{22.4}{2}$ litre = 11.2 litres.

and weight = 14 gms

Q12) Ans:- A.

Solution:- $N_2 + 3H_2 \rightarrow 2NH_3$.

1 volume of N_2 combines with 3 volumes of H_2 to give 2 volumes of NH_3.

The ratio of $N_2 : H_2$ is 1:3, which is a simple ratio.

Q13) Ans:- A

Solution:- $2C_2H_2 + 5O_2 \rightarrow 4CO_2 + 2H_2O$

2 moles of C_2H_2 = 5 moles of O_2.

C_2H_2	O_2
2×22.4 lit = 44800 mL	5×22.4 litres = 112,000 mL
70	x

$$x = \frac{112,000 \times 70}{44800} = 175 mL.$$

For 70 mL of C_2H_2, 175 mL of oxygen required.

Q14) Ans:- $CuO + H_2 \rightarrow Cu + H_2O$. **Ans:- A**

For 1 mole CuO, 1 mole H_2 produces 1 mole Cu.

1 mole CuO = 65.5 + 16 = 81.5 gms.

CuO

1 mole → 81.5 gms.
x → 7.95
$x = \frac{7.95}{81.5}$
= 0.097 moles.

1 mole → 22.4 litres.
0.097 → x.
x = 2.185 litres

15) Ans:- 4.

Solution:- $4Al + 3O_2 \rightarrow 2Al_2O_3$

For 4 moles of Al requires 3 moles of O_2

But given 44.8 lit of O_2 means 2 moles.

Al	O_2
4 moles	3 moles.
x	2 moles.

$$x = \frac{4 \times 2}{3} = \frac{8}{3} = 2.66 \text{ moles.}$$

1 mole of Al = 27 gms.

For 2.66 moles = $2.66 \times 27 = 72$ gms.

Q16) Ans:- 2

Solution:- $Zn + H_2SO_4 \rightarrow ZnSO_4 + H_2$

1 mole 1 mole 1 mole 1 mole

Given $H_2 = 224$ mL.

1 moles	22400 mL.
x	224 mL

$$x = \frac{224}{22400} \quad 0.01 \text{ moles.}$$

For 0.01 moles of H_2, Zn als 0.01 moles

1 mole Zn = 65 g.

0.01 moles of Zn = 0.01×65

$= 0.65$ gms.

Q17) Ans:- 2

Solution:- $C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$

For 1 mole of C_3H_8 requires 5 moles of O_2

1 mole $C_3H_8 = (3\times12)+8(1) = 36+8 = 44$ gms.

Given $C_3H_8 = 2.2$ gms.

$1 \longrightarrow 44$ gms.

$x \longrightarrow 2.2$ gms

$$x = \frac{2.2}{44} = 0.05 \text{ moles.}$$

For 0.055 moles of $C_3H_8 = 5 \times 0.055$ of O_2

$= 0.275$ moles.

For O_2

1 mole $\rightarrow$ 22.4 litres.

0.275 moles $\rightarrow$ x

$x = 22.4 \times 0.275 = 5.6L$

Integer Type.

Q18) Ans:- 2

Solution:- $Zn + H_2SO_4 \rightarrow ZnSO_4 + H_2$

For 1 mole of Zn, 1 mole of H_2 produced.

Given 44.8L of H_2, i.e, 2 moles of H_2

For 2 moles of $H_2 \rightarrow$ 2 moles of Zn

Q19) Ans:- 2

Solution:- $CaCO_3 \rightarrow CaO + CO_2$

For 1 mole of $CaCO_3$, produces 1 mole of CO_2

For 448ml of $CaCO_3$, no. of moles of CO_2 = ?

CO_2

$1 \longrightarrow 22.4$ litres.

$x \rightarrow 0.448$ litres.

$$x = \frac{0.448}{22.4} = 0.02 \text{ moles.}$$

For 0.02 moles of CO_2, 0.02 moles of $CaCO_3$.

1 mole of $CaCO_3 = 40 + 12 + 48 = 100$ gms.

0.02 moles of $CaCO_3$ = ?

$1 \rightarrow 100$

$0.02 \rightarrow x$

$x = 0.02 \times 100 = 2$ gms.

This 2 gms of $CaCO_3$ produces 448ml of O_2.

But they gave only 10 gms.

$$\text{Purity} = \frac{2}{10} \times 100 = 20\%$$

20% $CaCO_3$ is present.

$20\% = 2 \times 10\%$.

$x = 2$.

Q 20) Matrix Matching

Ans:- A - (iv), B - (i), C - (ii), D - (iii)

Solution:-

A) 10g. $CaCO_3 \xrightarrow{\Delta}$

$CaCO_3 \rightarrow CaO + CO_2$

100 gms. 56 44.

1 mole 1 mole

10gms means = 0.1 mole.

0.1 mole of $CaCO_3 \rightarrow$ 0.1 moles of CO_2

$\rightarrow 0.1 \times 22.4$ litres = 2.24 litres

B). 1.06g. $Na_2CO_3 \xrightarrow{\text{Excess } HCl}$.

$Na_2CO_3 + 2HCl \rightarrow 2NaCl + H_2O + CO_2$

1 mole 1 mole

1 mole = 46+12+48 = 106gms. of Na_2CO_3.

1.06 gms means $\rightarrow$ 0.01 moles.

For CO_2 $\quad 1 \rightarrow 22.4$ litres

0.01 moles $\rightarrow x$ $\quad x = 0.224$ litres

c) 24g C $\xrightarrow{O_2}$

$C + O_2 \rightarrow CO_2$

1 mole 1 mole.

For C 1 mole = 12 gms $\quad x = \frac{2.4}{12} = 0.2$ moles

$x = 2.4$ gms

$CO_2 \rightarrow 1 \rightarrow 22.4$ litres

$0.2 \rightarrow x \Rightarrow x = 22.4 \times 0.2$

$= 4.48$ litres.

D) 0.56g. CO $\xrightarrow{O_2}$

$CO + \frac{1}{2}O_2 \rightarrow CO_2$

28g. $1 \rightarrow 28$gms

$x \rightarrow 0.56$gms. $\quad x = \frac{0.56}{28} = 0.02$ moles.

Volume of $CO_2 = 22.4 \times 0.02 = 0.448$ litres

Learner's Task

Q1) Ans:- 4

Solution:- $2O_3 \rightarrow 3O_2$

$O_3 = 3 \times 16 = 48$ gms.

Given $O_3 = 9.60$g.

For 1 mole $\rightarrow$ 48 gms

$x \rightarrow 9.6$ gms.

$x = \frac{9.6}{48} = 0.2$ moles.

For O_3 O_2

2 moles $\rightarrow$ 3 moles. $\rightarrow x = \frac{0.2 \times 3}{2} = 0.3$ moles

0.2 $\rightarrow x$.

Volume of O_2

1 mole = 22.4 litres.

0.3 = x

$x = 0.3 \times 22.4$ litres $= 6.72$ litres

$= 6720$ ml.

Q2) Ans:- 2

Solution:- $S + O_2 \rightarrow SO_2$

SO_2

1 $\rightarrow$ 22.4 litres

$x \rightarrow 0.224$ litres. $x = \frac{0.224}{22.4} = 0.01$ moles.

For 0.01 moles of SO_2, 0.01 moles 'S' used.

1 mole of S = 32 gms.

0.01 moles of S = 32×0.01

$= 0.32$ gms

Q3) Ans:- 3.

Solution:- $CaCO_3 \rightarrow CaO + CO_2$

1 mole of $CaCO_3$ = 1 mole of CO_2

Given 5.6 litres of CO_2

$1 \rightarrow 22.4$ litres.

$x \rightarrow 5.6$

$x = \frac{5.6}{22.4} = 0.25$ moles.

1 mole of $CaCO_3 = 40+12+48 = 100$ gms.

0.25 moles of $CaCO_3 = 100 \times 0.25$

$= 25$ gms

Q4) Ans:- 3.

Solution:- $Cl_2 + H_2S \rightarrow 2HCl + S$.

1 mole of Cl_2 requires of 1mole of H_2S.

Given $H_2S = 10$ litres, i.e volume of $Cl_2 = 10$ litres

Q5) Ans:- 3.

Solution:- $C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$

For 1 mole of $C_3H_8 \rightarrow 3$ moles of CO_2

For 100 cm^3 of $C_3H_8 = 3 \times 100$ cm^3 of CO_2

$= 300$ cm^3

Q6) Ans:- 1

Solution:- $Fe_2O_3 + 3H_2 \rightarrow 2Fe + 3H_2O$.

1 mole of $Fe_2O_3 = 2\times56 + 3(16) = 112 + 48 = 160$ gms.

For 1 mole of $Fe_2O_3 \rightarrow 3$ moles H_2

Volume of 3 moles of $H_2 = 3\times22.4$ litres

Q7) Ans:- 4.

Solution:- $CO_2 + C \rightarrow 2CO$

Given Volume of $CO_2 = 26$ CC.

For 1 mole of $CO_2 = 2$ moles CO.

Volume of CO $= 2\times26$

$= 52$ CC

Q8) Ans:- 1

Solution:- $H_2 + Cl_2 \rightarrow 2HCL$.

$H_2 = 100$mg $= 0.1$ gms.

for 1 mole of $H_2 = 2$ gm

x of $H_2 = 0.1$ gm

$x = 0.05$ moles.

For 1 mole H_2, 1 mole Cl_2 to produce 2 moles of HCL.

0.05 moles of H_2 & 0.05 moles of Cl_2, 0.1 moles of Hcl.

Volume of 0.05 moles of $Cl_2 \rightarrow 0.05 \times 22400$ mL

$= 1120$mL

Q9) Ans: 1

Solution: $Zn + H_2SO_4 \rightarrow ZnSO_4 + H_2$.

1 mole Zn produce 1 mole of H_2

H_2 $\quad 1 \rightarrow 22.4$ litres.

$x \rightarrow 0.224$ litres.

$$x = \frac{0.224}{22.4} = 0.01 \text{ moles.}$$

For 1 mole $Zn = 65$ gms.

0.01 moles of $Zn = 0.01 \times 65 = 0.65$ gms.

Q10) Ans: 4.

Solution: $2HCl \rightarrow H_2 + Cl_2$

2 moles of HCl $\rightarrow$ 1 mole of H_2

Given Volume of HCL = 100mL.

1 mole $\rightarrow$ 22400mL.

$x \rightarrow 100$

$$x = \frac{100}{22400} = 0.00446 \text{ moles.}$$

If Hcl is 0.00446 moles, H_2 = ?

$H_2 = 0.00223$ moles.

For 100mL of Hcl $\rightarrow$ 50mL of H_2

JEE Main Level Questions

Q11) Ans: 2

Solution: $CO + 0.5\,O_2 \rightarrow CO_2$

For 1 mole CO, 0.5 moles of O_2 gives 1 mole CO_2

If $CO = 2$ lit, $O_2 = 1$ lit then $CO_2 = 2$ lit

Q12) Ans: 4.

Solution: $2H_2 + O_2 \rightarrow 2H_2O$

For 2 moles of H_2, 1 mole of oxygen.

For 26 ml of H_2, requires 13 ml of O_2

But Given 24 ml of O_2

Remaining $O_2 = 24 - 13 = 11$ ml.

Q13) Ans: 2

Solution: $CaCO_3 \rightarrow CaO + CO_2$

1 mole 1 mole

For 11.2 litres, $CO_2 = 0.5$ moles.

$CaCO_3 = 40 + 12 + 48 = 100$ gms.

0.5 moles of $CaCO_3 = 50$ gms.

50 gms of $CaCO_3$ is required produce 11.2 litres of CO_2.

They told which is 80% pure

For 80% → 50 gms

100% → x

$x = \frac{50 \times 100}{80} = 62.5$ gms.

Q14) Ans:- 2

Solution:- $Zn + H_2SO_4 \rightarrow ZnSO_4 + H_2$.

Given $Zn = 6.5$ gms.

$Zn = 0.1$ moles.

For 0.1 moles of Zn, 0.1 mole of $ZnSO_4$ & 0.1 mole of H_2 is liberated.

1 mole of $ZnSO_4 = 65 + 32 + 4(16) = 161$ gms.

0.1 moles of $ZnSO_4 = 0.1 \times 161 = \underline{16.1 \text{ gms}}$

0.1 moles H_2 volume $= 0.1 \times 22.4$ litres

$= \underline{2.24 \text{ litres}}$

Q15) Ans:- 2

Solution:- $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$.

Given, volume of $CH_4 = 5$ mL.

For 1 mole CH_4, 2 moles of O_2, 1 mole of CO_2

$O_2 = 2 \times 5\text{mL} = 10\text{mL}$, $CO_2 = 1 \times 5 = 5$ mL.

Q16) Ans:- 1

Solution:- $C_6H_6 + \frac{15}{2}O_2 \rightarrow 6CO_2 + 3H_2O$.

$C_6H_6 = (6 \times 12) + 6 = 78$ gms.

Given $C_6H_6 = 39$ gms i.e 0.5 moles.

Volume of 0.5 moles of $C_6H_6 = 11.2$ litres.

Volume of $O_2 = \frac{15}{2} \times 11.2 = \underline{84 \text{ litres}}$

Q17) Ans:- 2

Solution:- $2KClO_3 \rightarrow 2KCl + 3O_2$

For 2 moles of $KClO_3 \rightarrow$ 3 moles of O_2

O_2

$1 \rightarrow 22.4$ lit

$x \rightarrow 1.12$ lit

$$x = \frac{1.12}{22.4} = 0.05 \text{ moles.}$$

$KClO_3$ O_2

2 moles 3 moles.

x 0.05 moles

$$x = \frac{2 \times 0.05}{3} = 0.033 \text{ moles.}$$

1 mole $KClO_3$ $= 39 + 35.5 + 48$

$= 122.5$ gms.

For 0.033 moles of $KClO_3 = 122.5 \times 0.033$

$= 5.6265$ gms.

1 mole of KCl $= 39 + 35.5$

$= 74.5$ gms.

0.033 moles of KCl $= 0.033 \times 74.5$

$= 2.45$ gms. of KCl

Q18) Ans: 4.

Solution: $2KClO_3 \rightarrow 2KCl + 3O_2$

O_2 1 mole $\rightarrow$ 22.4 litres

$x \rightarrow$ 67.2 litres.

$x = \frac{67.2}{22.4} = 3.013$ moles

$KClO_3$	O_2
2	3
x	3.013

$x = \frac{2 \times 3.013}{3} = 2.008.$

Q19) Ans: 2

Solution: $MgCO_3 + CaCO_3 \rightarrow MgO + CaO + 2CO_2$

Given, $MgCO_3 + CaCO_3 = 18.4$ gms.

i.e, 8.4 gms of $MgCO_3$ and 10gms of $CaCO_3$

→ 0.1 mole of $MgCO_3$, 0.1 moles of $CaCO_3$ produce 0.2 moles of CO_2

→ 0.2 moles CO_2 volume = $0.2 \times 22.4 = 4.48L$

Q20) Ans: 3.

Solution: Equal volumes of different gases contain equal no. of moles.

$O_2 \rightarrow$ 1 mole → 32 grams

x → 4 $\quad x = \frac{4}{32} = 0.125$ moles.

For 0.125 moles of $H_2 = 0.125 \times 2 = 0.25$ gm

Q21) Ans:- A, D.

Solution:- $2H_2 + O_2 \rightarrow 2H_2O$.

Given $H_2 = 4g$, $O_2 = 4g$ But

for 4gms of H_2 requires 32 grams of O_2.

So O_2 is a limiting reagent.

O_2 1 mole → 32gms → 22.4 litres

4gms → x

$$x = \frac{22.4 \times 4}{32} = 2.8 \text{ litres.}$$

For 2.8 litres of O_2, H_2O = ?

$= 2 \times 2.8$ litres of H_2O

$= 5.6$ litres.

Q22) Ans:- A.

Solution:- $CH_4 = 12+4 = 16$ gms

Given $CH_4 = 8$ gms means 0.5 moles which can occupy 11.2 litres.

$N_2 = 28$ gms, but given 14 gms i.e 0.5 moles, this also occupy 11.2 litres.

Equal volumes of all gases under the same condition contain equal no. of molecules.

Q23) Ans:- A.

Solution:- $H_2 + Cl_2 \rightarrow 2HCl$.

The volume of H_2, Cl_2 & HCl is 1:1:2.

→ The substance always react in such a way that their volume ratio is simple whole number.

Q24) Ans:- 4.

Solution:- $CO_2 + C \rightarrow 2CO$.

Given:- Volume of CO_2 = 26 C.C.

Volume of CO_2 & CO in the ratio of 1:2

If volume of CO_2 = 26 cc then

volume of CO = 2×26 = 52CC

Q25) Ans:-

Solution:- $2C_4H_{10} + 13O_2 \rightarrow 8CO_2 + 10H_2O$.

Volume of C_4H_{10} & CO_2 is in the ratio of

2 : 8 i.e, 1:4.

Given, volume of butane = 2 litres.

volume of CO_2 = 2×4

= 8 litres

Q26) Ans: 3.

Solution: $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

The volume of CH_4 & O_2 in the ratio of 1:2

Given, volume of methane = 10 litres.

Volume of O_2 : 2×10

$= 20$ litres

Integer Type

Q27) Ans: 6.

Solution: $C_2H_4 + 3O_2 \rightarrow 2CO_2 + 2H_2O$.

The volume of C_2H_4 & O_2 in the ratio of

1:3

Given volume of ethene = 2mL.

volume of $O_2 = 3 \times 2 = 6mL$

Matrix Matching

Q28) Ans: A - 5, B - 1, C - 2, D - 3.

Solution:

A) CH_3OH

$\rightarrow 2CH_3OH + 3O_2 \longrightarrow 2CO_2 + 4H_2O$

CH_3OH & CO_2 are in 1:1 ratio.

For 1 mole of CO_2 = 22.4 litres.

B) 1.06g Na_2CO_3 $\xrightarrow{\text{Excess HCL}}$

$Na_2CO_3 + 2HCL \rightarrow 2NaCL + CO_2 + H_2O$.

Na_2CO_3 & CO_2 are in 1:1 ratio.

1 mole Na_2CO_3 = 106 gms.

Given 1.06 gms, so 0.01 moles.

0.01 moles of CO_2 occupies 0.224 litres

C) 2.4g C $\xrightarrow{\text{Excess } O_2}$

$C + O_2 \longrightarrow CO_2$

1 mole 1 mole.

C

1 mole $\rightarrow$ 12 gms

x $\rightarrow$ 2.4 gms

$x = \frac{2.4}{12}$ 0.2 moles.

0.2 moles CO_2 occupies 4.48 litres

D) 0.56g CO $\xrightarrow{O_2}$

$CO + \frac{1}{2}O_2 \rightarrow CO_2$

1 mole 1 mole.

CO

1 $\rightarrow$ 28 gms.

x $\rightarrow$ 0.56 gms

$x = \frac{0.56}{28}$

$= 0.02$ moles.

Volume of CO_2 =

$= 0.02 \times 22.4$

$= 0.448$ litres