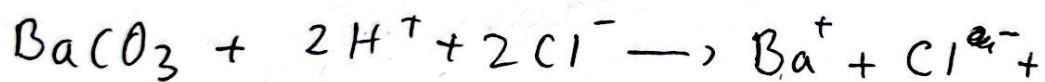
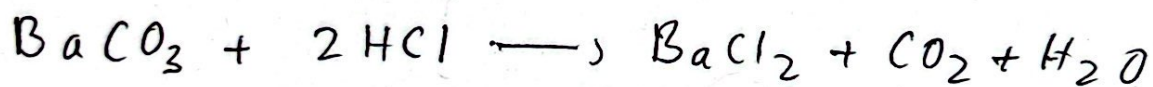


MCA

- 1) Al
- 2) 178
- 3) 5.73g
- 4) 90.4%
- 5) 97.4%
- 6) P
- 7) ionic bond
- 8) $\text{Zn} \rightarrow \text{Zn}^{2+} + 2e^-$
- 9) ~~$\text{C}_6\text{H}_{14}\text{OH}$~~ $\text{C}_6\text{H}_{16}\text{OH}$
- 10) M_3O_5

Broad Question

- 1) ionic equation :-



Observation:-

~~1) No more solid vi;~~

1) Effervescence produced

2) Solid substances is visible

b) i)

$$\begin{aligned}\text{Moles} &= \text{Volume} \times \text{Concentration} \\ &= \frac{25.0}{1000} \times 2.00 \\ &= 0.05 \text{ mol}\end{aligned}$$

ii)

$$\text{Moles} = \frac{\text{Mass}}{M_r}$$

$$\begin{aligned}\text{Mass} &= \text{Mole} \times M_r \\ &= 0.05 \times 197.3 \\ &= 9.865 \text{ g}\end{aligned}$$

iii)

To ensure that all the HCl acid has reacted with the solid barium carbonate.

iv)

By filtration as barium chloride is insoluble.

v)

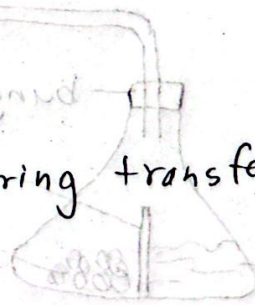
$$\text{Mole} = 0.05$$

$$\begin{aligned}0.05 \times 244 \\ = 12.2\end{aligned}$$

$$\begin{aligned}\therefore \frac{5.35}{12.2} \times 100 \\ = 43.85 \%\end{aligned}$$

vi)

Some crystals were lost during transferring it from one place to another.



2. a)

Element	N	H	S	O
Mass	14.42	3.09	33.06	49.43
Mole	$\frac{14.42}{14}$	$\frac{3.09}{1}$	$\frac{33.06}{32}$	$\frac{49.43}{16}$
	= 1	= 3.09	= 1	= 3.
Ratio	$\frac{1}{1}$	$\frac{3.09}{1}$	$\frac{1}{1}$	$\frac{3}{1}$
	= 1	= 3.09	= 1	= 3

Empirical formula = NH_3SO

ii)

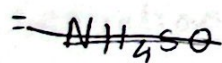
Molecular formula:-

$$\frac{97.1}{(14 + (3 \times 1) + 32 + 16)}$$

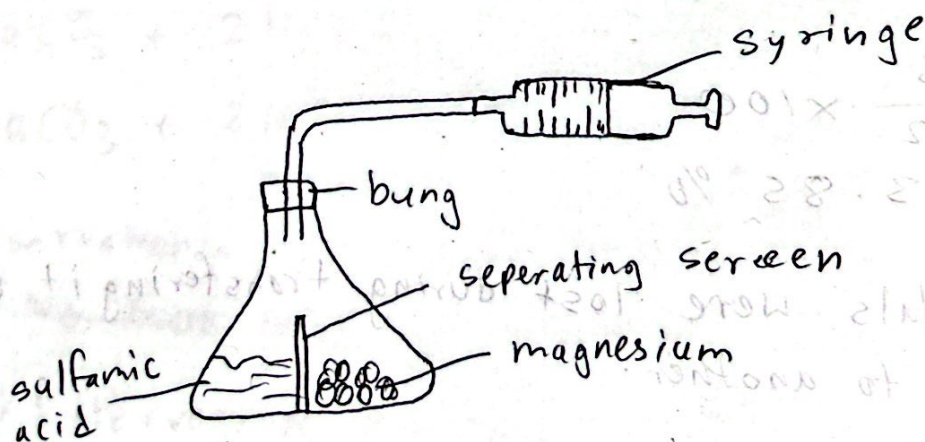
$$= 1.49$$

$$1.49 (\text{NH}_3\text{SO})$$

$$= \text{N}_{1.49} \text{H}_{4.48} \text{S}_{1.49} \text{O}_{1.49}$$



b)



Proctivas

i) Moles = $\frac{\text{Volume}}{24}$
 $= \frac{66 \div 1000}{24}$
 $= 2.75 \times 10^{-3} \text{ mol}$

ii) $\frac{5.5 \times 10^{-3}}{2.75 \times 10^{-3}}$
 $= 2$

$\therefore$ Ratio is 2 : 1

which shows that everytime 1 mol of hydrogen ions are produced.

c)

ii) Sulfamic acid is weaker acid than HCl as it is in solid form.

$$\begin{aligned}
 3. a) \quad \text{Mole} &= \frac{\text{Volume}}{24} \\
 &= \frac{58.4 \div 1000}{24} \\
 &= 2.43 \times 10^{-3} \text{ mol}
 \end{aligned}$$

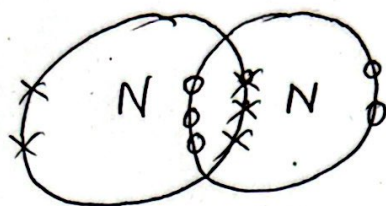
$$\begin{aligned}
 ii) \quad \text{Mass} &= \text{Mole} \times M_r \\
 &= 2.43 \times 10^{-3} \times 84 \\
 &= 0.2044 \text{ g}
 \end{aligned}$$

$$\begin{aligned}
 iii) \quad &\frac{0.227 - 0.2044}{0.2044} \times 100 \\
 &= 11.9\%
 \end{aligned}$$

$$\begin{aligned}
 b) \quad &\frac{(58.4 + 0.4) - 58.4}{58.4} \times 100 \\
 &= 0.68\%
 \end{aligned}$$

ii) Carbon dioxide is denser than air, so it could dissolve in water.

4.8)



ii)

$$\frac{5.60}{44} \times 6.02 \times 10^{23}$$

$$= 2.408 \times 10^{23} \text{ atoms}$$

iii)

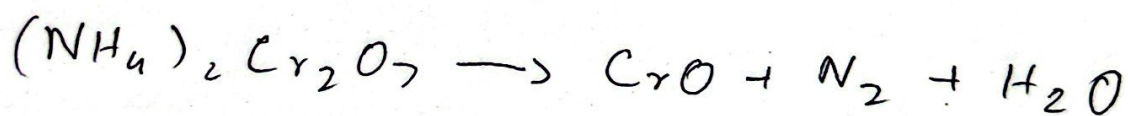
$$PV = nRT$$

$$n = \frac{PV}{RT}$$

$$= \frac{1.36 \times 10^5 \times 108}{8.31 \times 25}$$

$$= 70700$$

5.7)



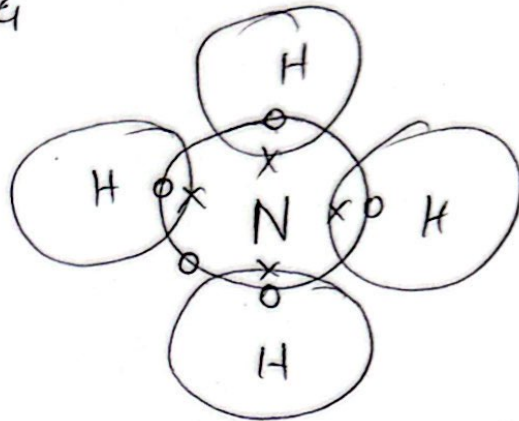
ii)

Thermal decomposition

b)

Protivas

20/03/21

c) NH_4 

d) It could allow alkanes to undergo combustion reaction.

ii) 5

6) $\text{Mg}(\text{OH})_2$ is an alkali which is soluble.

7)