

Quantidades de Reativos e Produtos.



$$a) \quad \frac{2 \text{ mol de Li}}{6.2 \text{ mol de Li}} = \frac{1 \text{ mol de H}_2}{x}$$

$$x = 3.1 \text{ mol de Hidrogeno}$$

$$b) \quad n = \frac{m}{M.A.L.} = \frac{80 \text{ g}}{6.94 \text{ g/mol}} = 11.53 \approx 11.5 \text{ mol}$$

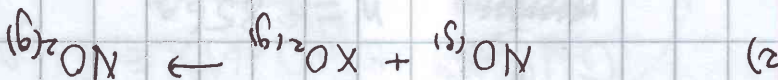
$$\frac{2 \text{ mol de Li}}{11.5 \text{ mol de Li}} = \frac{1 \text{ mol de H}_2}{x}$$

$$x = 5.75 \text{ mol de H}_2$$

$$m = n \times M.A.L.$$

$$= 5.75 \text{ mol} \times 2.016 \text{ g/mol}$$

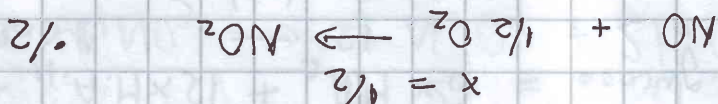
$$m = 11.59 \text{ g de hidrogeno.}$$



$$x \cdot 2 + 1 = 2$$

$$2x = 1$$

$$x = 1/2$$



$$\frac{1 \text{ mol de O}_2}{2 \text{ moles de NO}_2} = \frac{x}{2 \text{ mol de O}_2}$$

$$x = 4 \text{ moles de NO}_2$$

$$b) \quad M.M_{NO_2} = 14 + 2 \times 16 = 46 \text{ g/mol}$$

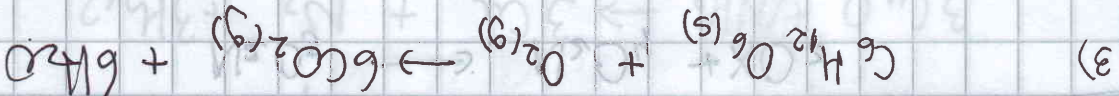
$$\uparrow \quad \uparrow$$

$$M.A.N \quad M.A.N$$

$$n = \frac{50g}{46 \text{ g/mol}} = 1.1 \text{ mol de } NO_2$$

$$= \frac{1 \text{ mol de } O_2}{2 \text{ mol de } NO_2} = 1.1 \text{ mol de } NO_2$$

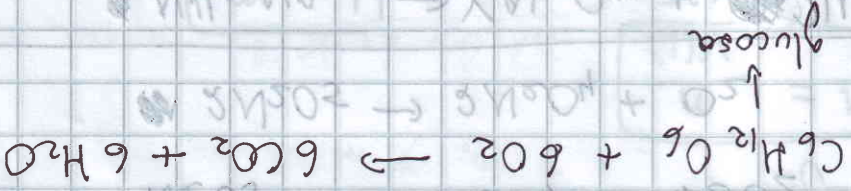
$$x = 0.55 \text{ mol de } O_2$$



$$x \cdot 2 + 6 = 12 + 6$$

$$2x = 12$$

$$x = 6$$



$$n = \frac{856g}{M.M_{glucosa}} - \text{glucosa}$$

$$M.M_{glucosa} = 6 \times M.A_C + 12 \times M.A_H + 6 \times M.A_O$$

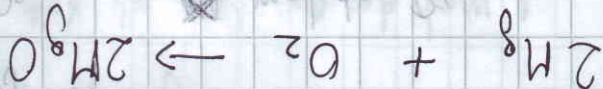
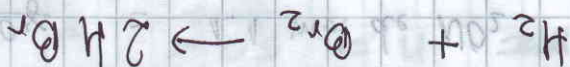
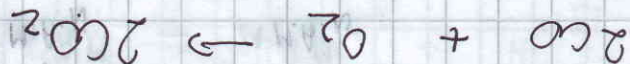
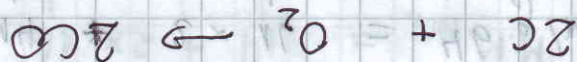
$$= 180.1 \text{ g/mol}$$

$$n = \frac{856g}{180.1 \text{ g/mol}} = 4.8 \text{ mol}$$

$$\frac{1 \text{ mol } C_6H_{12}O_6}{6 \text{ mol } CO_2} = \frac{4.8 \text{ mol de } C_6H_{12}O_6}{x}$$

$$m = n \times M.M_{CO_2} = 28.8 \times 44 = 1267.2g$$

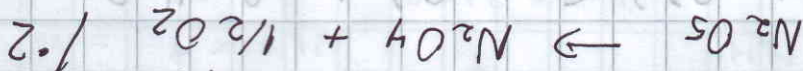
$$x = 28.8 \text{ mol de } CO_2$$



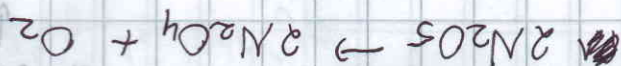
$$X \cdot 2 + 4 = 5$$

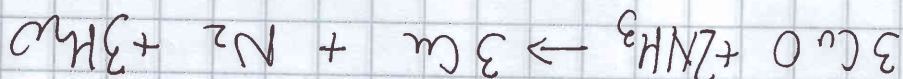
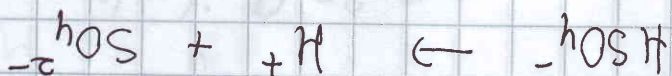
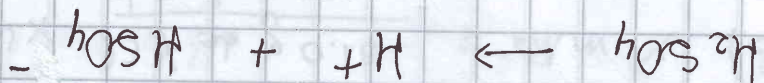
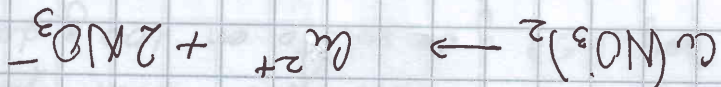
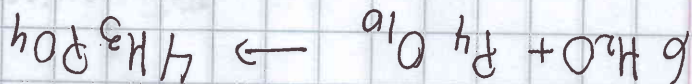
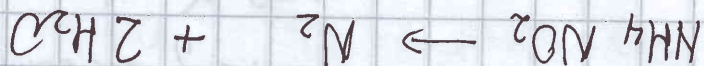
$$2X = 1$$

$$X = 1/2$$



$$/ \cdot 2$$





Repaso : Unidades de Concentración.

1)

Arreglado.

$$M = \frac{n}{V(L)}$$

$$m_{\text{soln}} = 125\text{g}$$

$$M = 2.45M$$

$$d_{\text{soln}} = 0.976\text{ g/mL}$$

$$n = M \times V(L)$$

$$= 2.45\text{mol/L} \times 0.128\text{L}$$

$$= 0.314\text{ mol}$$

$$d = \frac{m}{V}$$

$$V = \frac{m}{d}$$

$$= \frac{125\text{g}}{0.976\text{g/mL}}$$

$$= 128.1\text{ mL}$$

$$128.1\text{ mL} \times \frac{1\text{ L}}{1000\text{ mL}} = 0.1281\text{ L}$$

2)

a)

$$\% \text{ m/m} = \frac{5.50 \text{ g de NaBr}}{83.7 \text{ g de soln}} \times 100$$

$$= 6.57 \% \text{ m/m}$$

↓

Esto quiere decir que:
hay 6.57 g de soluto en 100 g de solución.

$$b) \% \text{ m/m} = \frac{31.0 \text{ g de KCl}}{150 \text{ g de soln}} \times 100$$

$$= 20.6\% \text{ m/m}$$

3)

a)

$$\% \text{ m/v} = \frac{5.50 \text{ g de NaBr}}{78.2 \text{ mL de soln}} \times 100$$

$$= 7.03 \% \text{ m/v}$$

b)

$$\% \text{ m/v} = \frac{31.0 \text{ g de KCl}}{125 \text{ mL de soln}} \times 100$$

$$= 24.8 \% \text{ m/v}$$

↑↑

quiere decir que:

hay 24.8 g de soluto en 100 mL de solución.

$$c) \% \text{ m/v} = \frac{31.0 \text{ g de soluto}}{150.3 \text{ mL}} \times 100 = 20.6 \% \text{ m/v}$$

$$m_{\text{soln}} = m_{\text{s}} + m_{\text{solvente}}$$

$$m_{\text{soln}} = 181 \text{ g de solución}$$

$$V = \frac{181 \text{ g}}{1.2 \text{ g/mL}} = 150.3 \text{ mL}$$

$$\approx 1.596 \text{ g} \approx 1.6 \text{ g}$$

$$= 0.01 \text{ mol} \times 159.6 \text{ g/mol}$$

$$m = n \times M.H. \text{ usoy} = 159.6 \text{ g/mol}$$

$$= 63.5 + 32.1 + 4 \times 16$$

$$n = \frac{m}{M.H. \text{ usoy}} = M.H. \text{ us} + M.A_s + 4 \times M.A_o$$

$$n = 0.01 \text{ mol}$$

$$= 0.4 \text{ mol/l} \times 0.025 \text{ l}$$

$$5) \quad a) \quad n = \frac{V(L)}{M} \rightarrow n = M \times V$$

$$M = 8.6 \text{ Mol/L}$$

$$M = \frac{0.86 \text{ mol}}{0.1 \text{ L}} = 8.6 \text{ mol/L}$$

$$n = \frac{58.45 \text{ g/mol}}{0.86 \text{ mol}} = 0.86 \text{ mol}$$

$$V(L) \Rightarrow 100 \text{ mL} \times \frac{1 \text{ L}}{1000 \text{ mL}} = 0.1 \text{ L}$$

$$= 23 + 35.45$$

$$n = \frac{m}{M.H. \text{ NaCl}} = M.H. \text{ Na} + M.A_{Cl}$$

4)

b)

$$n = 0.8 \text{ mol/L} \times 0.050 \text{ L}$$

$$n = 0.04 \text{ mol}$$

$$m = 0.04 \text{ mol} \times 159.6 \text{ g/mol}$$

$$= 6.384 \text{ g}$$

$$\approx 6.4 \text{ g}$$

c)

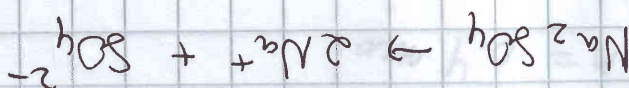
$$n = 5.5 \text{ mol/L} \times 2 \text{ L}$$

$$= 11 \text{ mol}$$

$$m = 11 \text{ mol} \times 159.6 \text{ g/mol}$$

$$= 1755.6 \text{ g}$$

d)



$$n = M \times V(\text{L})$$

$$= 1.2 \text{ mol/L} \times 0.025 \text{ L}$$

$$n = 0.03 \text{ mol de } \text{Na}^+$$

há estequiometria de 1:2.

$$\frac{1 \text{ mol de } \text{Na}_2\text{SO}_4}{2 \text{ mol de } \text{Na}^+}$$

$$x = 0.015 \text{ mol de } \text{Na}_2\text{SO}_4$$

$$m = n \times M.M. \text{Na}_2\text{SO}_4 = 0.015 \text{ mol} \times 142 \text{ g/mol} = 2.13 \text{ g}$$

$$M.M. \text{Na}_2\text{SO}_4 = 2 \times M.A. \text{Na} + M.A. \text{S} + 4 \times M.A. \text{O}$$

$$= 142 \text{ g/mol}$$

g)

$$n = 1.2 \text{ mol/l} \times 0.050 \text{ l}$$

$$n = 0.06 \text{ mol de iones } \text{SO}_4^{2-}$$

$$\frac{1 \text{ mol de } \text{Na}_2\text{SO}_4}{0.06 \text{ mol de } \text{SO}_4^{2-}} = \frac{x \text{ mol de } \text{Na}_2\text{SO}_4}{0.06 \text{ mol de } \text{SO}_4^{2-}}$$

$$x = 0.06 \text{ mol de } \text{Na}_2\text{SO}_4$$

$$m = 0.06 \text{ mol} \times 142 \text{ g/mol}$$

$$= 8.52 \text{ g de } \text{Na}_2\text{SO}_4$$

h)

$$n = 4 \text{ mol/l} \times 0.1 \text{ l}$$

$$n = 0.4 \text{ mol}$$

$$m = 0.4 \text{ mol} \times \text{M.M. NaOH}$$

$$\text{M.M. NaOH} = 23 + 16 + 1 = 40 \text{ g/mol}$$

$$m = 16 \text{ g}$$

Se colocan 16 g de NaOH en un recipiente de 100 mL y luego adicionamos agua hasta completar los 100 mL de solución, tapar y agitar.