



Nom i Cognoms: _____

Matèria: _____

Solucions Dissolucions (2)

1

a) $20\% \text{ en massa} = \frac{20 \text{ g solut}}{100 \text{ g diss.}} \cdot 100$
 $d \text{ dissolució} = 1,25 \text{ g/cm}^3$
 36 g solut

$$36 \text{ g solut} \cdot \frac{100 \text{ g dissol.}}{20 \text{ g solut}} = \boxed{180 \text{ g dissolució}}$$

b) $V \text{ dissolució?}$

$$40 \text{ g solut} \cdot \frac{100 \text{ g dissol.}}{20 \text{ g solut}} \cdot \frac{1 \text{ cm}^3 \text{ dissol.}}{1,25 \text{ g dissol.}} = \boxed{160 \text{ cm}^3 \text{ dissol.}}$$

c) $m \text{ solut?}$

$$300 \text{ g dissolució} \cdot \frac{20 \text{ g solut}}{100 \text{ g dissol.}} = \boxed{60 \text{ g solut}}$$

d) $m \text{ solut?}$

$$200 \text{ cm}^3 \text{ dissolució} \cdot \frac{1,25 \text{ g dissol.}}{1 \text{ cm}^3 \text{ dissol.}} \cdot \frac{20 \text{ g solut}}{100 \text{ g dissol.}} = \boxed{50 \text{ g solut}}$$

2

$C \text{ molar? (g/L)}$

$d_{\text{NH}_3} = ? \text{ (g dissol. / volum dissol.)}$
 dissol.

$$\boxed{20,3\%} = \frac{20,3 \text{ g solut}}{100 \text{ g dissol.}}$$

$$C = 11 \text{ M} = \frac{11 \text{ mol solut}}{\text{L dissol.}}$$

$$\frac{11 \text{ mol solut}}{\text{L dissol.}} \cdot \frac{17 \text{ g solut}}{1 \text{ mol NH}_3} \cdot \frac{1 \text{ L}}{1 \text{ dm}^3} = \boxed{\frac{187 \text{ g NH}_3}{\text{dm}^3}} \quad C_m$$

$$\frac{187 \text{ g solut}}{\text{dm}^3} \cdot \frac{100 \text{ g dissol.}}{20,3 \text{ g solut}} \cdot \frac{1 \text{ dm}^3}{1000 \text{ cm}^3} = \boxed{0,921 \text{ g dissolució / cm}^3 \text{ dissol.}}$$

3

$$6'25 \text{ M}$$

$$d = 1'25 \text{ g/cm}^3$$

$$\% \text{ massa ?}$$

$$\left\{ \begin{array}{l} 6'25 \frac{\text{mol solut}}{\text{L dissol}} \cdot \frac{1 \text{ L}}{1 \text{ dm}^3} \cdot \frac{1 \text{ dm}^3}{1000 \text{ cm}^3} \cdot \frac{1 \text{ cm}^3}{1'25 \text{ g dissol}} \cdot \frac{40 \text{ g}}{1 \text{ mol solut}} = \\ = 0'2 \frac{\text{g solut}}{\text{g dissol}} \cdot 100 = \boxed{20\%} \end{array} \right.$$

4 Diluïó

$$\boxed{M' \cdot V' = M \cdot V}$$

diluit concentrada

els mols inicials = mols finals
(no varien pel fet d'afegir d'aigua)

$$2 \cdot 100 = M \cdot 250$$

$$M = \frac{2 \cdot 100}{250} = \boxed{0'8 \text{ M}}$$

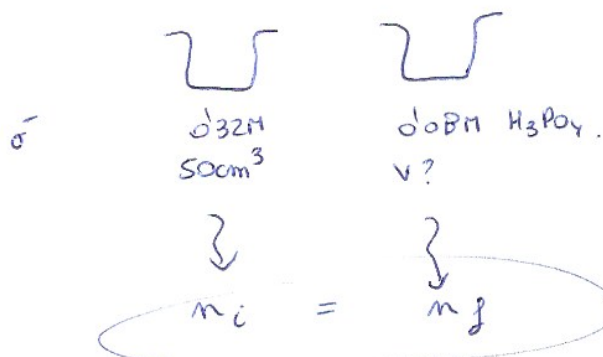
5

$$\boxed{M' \cdot V' = M \cdot V}$$

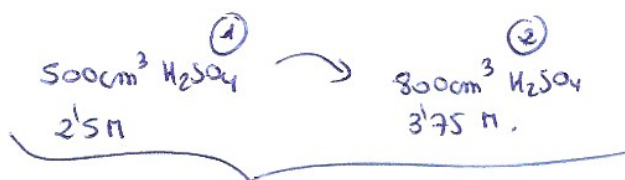
diluit conc

$$0'08 \cdot V' = 0'32 \cdot 50$$

$$V' = \frac{0'32 \cdot 50}{0'08} = 200 \text{ cm}^3$$



6



 concentració total ??

$$\text{Molaritat} = \frac{m_{\text{total}}}{V_{\text{total}}}$$

$m_1 + m_2$
 $V_1 + V_2$

Per tant:

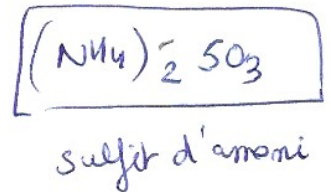
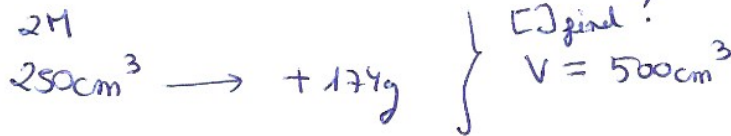
$$\text{Molaritat} = \frac{2'5 \frac{\text{mol}}{\text{L}} \cdot 500 \cdot 10^{-3} \text{ L} + 3'75 \frac{\text{mol}}{\text{L}} \cdot 800 \cdot 10^{-3} \text{ L}}{(500 + 800) \text{ cm}^3 \cdot \frac{1 \text{ dm}^3}{1000 \text{ cm}^3}} = \boxed{3'267 \text{ M}}$$



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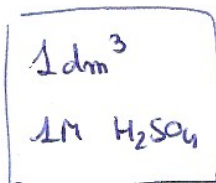
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7

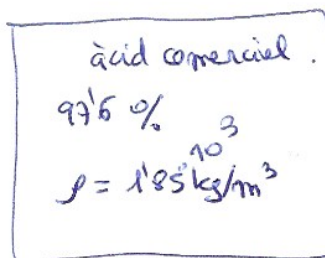


$$\text{Molaritat final} = \frac{m_t}{V_t} = \frac{\frac{2 \text{ mol}}{250} \cdot 250 \cdot 10^{-3} \text{ L} + 174 \text{ g} \cdot \frac{1 \text{ mol}}{116 \text{ g}}}{500 \cdot 10^{-3}} = 4 \text{ M}$$

8



$$1 \text{ kg/L} = 1 \text{ kg/dm}^3 = 1000 \text{ g/L}$$



a) Concentració inicial?

$$\frac{97.6 \text{ g H}_2\text{SO}_4}{100 \text{ g ampolla}} \cdot \frac{1 \text{ mol H}_2\text{SO}_4}{98 \text{ g H}_2\text{SO}_4} \cdot \frac{1000 \text{ g}}{1 \text{ kg ampolla}} \cdot \frac{1.85 \text{ kg ampolla}}{1 \text{ dm}^3} = 18.42 \text{ M}$$

b) Àcid comercial?

[C] = 18.42 M

V = 1dm³

1M

M.V = M'.V'

18.42 · V = 1 · 1

$$V = 0.054 \text{ dm}^3 = \frac{1000 \text{ cm}^3}{1 \text{ dm}^3} = 54 \text{ cm}^3$$