

$$\textcircled{1} \quad 2 \text{ ks} \frac{10^3 \text{ s}}{1 \text{ ks}} = 2000 \text{ s}$$

$$40 \text{ mm} \frac{10^{-3} \text{ m}}{1 \text{ mm}} = 0.04 \text{ m}$$

$$4 \cdot 10^{-4} \text{ GA} \frac{10^9 \text{ A}}{1 \text{ GA}} = 400.000 \text{ A}$$

$$200 \text{ dg} \frac{10^{-1} \text{ g}}{1 \text{ dg}} \frac{1 \text{ kg}}{10^3 \text{ g}} = 0.02 \text{ kg}$$

$$4 \text{ h} \frac{3600 \text{ s}}{1 \text{ h}} = 14.400 \text{ s}$$

$$\textcircled{2} \quad 2 \cdot 10^5 \text{ dm} \frac{10^{-1} \text{ m}}{1 \text{ dm}} \frac{1 \text{ hm}}{10^2 \text{ m}} = 200 \text{ hm}$$

$$600 \text{ hs} \frac{10^2 \text{ s}}{1 \text{ hs}} \frac{1 \text{ cs}}{10^{-2} \text{ s}} = 6.000.000 \text{ cs}$$

$$0.03 \text{ Ms} \frac{10^6 \text{ s}}{1 \text{ Ms}} \frac{1 \text{ cs}}{10^{-2} \text{ s}} = 3.000.000 \text{ cs}$$

$$70 \text{ dam} \frac{10 \text{ m}}{1 \text{ dam}} \frac{1 \text{ km}}{10^3 \text{ m}} = 0.7 \text{ km}$$

$$5 \cdot 10^5 \mu\text{g} \frac{10^{-6} \text{ g}}{1 \mu\text{g}} \frac{1 \text{ Mg}}{10^6 \text{ g}} = 5 \cdot 10^{-7} \text{ Mg}$$

$$\textcircled{3} \quad 0.05 \text{ m}^3 \frac{1 \text{ cm}^3}{10^{-6} \text{ m}^3} = 50.000 \text{ cm}^3$$

$$7 \cdot 10^4 \text{ mm}^2 \frac{10^{-6} \text{ m}^2}{1 \text{ mm}^2} = 0.07 \text{ m}^2$$

$$500 \text{ cm}^2 \frac{10^{-4} \text{ m}^2}{1 \text{ cm}^2} = 0.05 \text{ m}^2$$

$$3000 \text{ mm}^3 \frac{10^{-9} \text{ m}^3}{1 \text{ mm}^3} \frac{1 \text{ dm}^3}{10^{-3} \text{ m}^3} = 0.003 \text{ dm}^3$$

$$2 \cdot 10^6 \text{ hm}^2 \frac{10^4 \text{ m}^2}{1 \text{ hm}^2} \frac{1 \text{ cm}^2}{10^{-4} \text{ m}^2} = 2 \cdot 10^{14} \text{ cm}^2$$

$$\textcircled{4} \quad V_0 = 3 \text{ m}^3$$

$$P_0 = 5 \cdot 10^5 \text{ Pa}$$

$$V = ?$$

$$P = 300.000 \text{ Pa}$$

$$P_0 \cdot V_0 = P \cdot V$$

$$5 \cdot 10^5 \text{ Pa} \cdot 3 \text{ m}^3 = 300.000 \text{ Pa} \cdot V$$

$$\frac{5 \cdot 10^5 \cdot 3}{300.000} \text{ m}^3 = V$$

$$\boxed{V = 5 \text{ m}^3}$$

$$\textcircled{5} \quad V_0 = 400 \text{ dm}^3$$

$$P_0 = 800.000 \text{ Pa}$$

$$V = 600 \text{ dm}^3$$

$$P = ?$$

$$P_0 \cdot V_0 = P \cdot V$$

$$800.000 \text{ Pa} \cdot 400 \text{ dm}^3 = P \cdot 600 \text{ dm}^3$$

$$\frac{800.000 \cdot 400}{600} \text{ Pa} = P$$

$$\boxed{P = 533.333 \text{ Pa}}$$

$$\textcircled{6} \quad -150^\circ\text{C} = (-150 + 273) \text{ K} = 123 \text{ K}$$

$$60^\circ\text{C} = (60 + 273) \text{ K} = 333 \text{ K}$$

$$-40^\circ\text{C} = (-40 + 273) \text{ K} = 233 \text{ K}$$

$$5^\circ\text{C} = (5 + 273) \text{ K} = 278 \text{ K}$$

$$3000^\circ\text{C} = (3000 + 273) \text{ K} = 3273 \text{ K}$$

$$\textcircled{7} \quad 400 \text{ K} = (400 - 273)^\circ\text{C} = 127^\circ\text{C}$$

$$2.400 \text{ K} = (2400 - 273)^\circ\text{C} = 2127^\circ\text{C}$$

$$30 \text{ K} = (30 - 273)^\circ\text{C} = -243^\circ\text{C}$$

$$6 \text{ K} = (6 - 273)^\circ\text{C} = -267^\circ\text{C}$$

$$210 \text{ K} = (210 - 273)^\circ\text{C} = -63^\circ\text{C}$$

$\textcircled{8}$  Quines són les unitats fonamentals del SI? Indica la magnitud, el nom i el símbol

$\textcircled{9}$  Quines propietats tenen els gasos?

$\textcircled{10}$  Què li passa a un gas si, mantenint la temperatura constant, el col·loquem en un recipient de triple volum?

①  $V = 80 \text{ cm}^3$   
 $d = 2.70 \frac{\text{g}}{\text{cm}^3}$   
 $m = V \cdot d = 80 \text{ cm}^3 \cdot 2.70 \frac{\text{g}}{\text{cm}^3} = 216 \text{ g}$

②  $V_a = 150 \text{ cm}^3$   
 $V_g = ?$   
 $d_g = 0.915 \frac{\text{g}}{\text{cm}^3}$   
 $d_a = 1 \frac{\text{g}}{\text{cm}^3}$   
 $m_a = V_a \cdot d_a = 150 \text{ cm}^3 \cdot 1 \frac{\text{g}}{\text{cm}^3} = 150 \text{ g}$   
 $m_g = m_a = 150 \text{ g}$   
 $V_g = \frac{m_g}{d_g} = \frac{150 \text{ g}}{0.915 \frac{\text{g}}{\text{cm}^3}} = 163.9 \text{ cm}^3$

③ 26 electrons = 26 protons  
 30 neutrons

$Z = 26$   
 $A = 26 + 30 = 56$

④  $^{200}_{80}\text{Hg}$  } protons: 80  
                               neutrons: 120  
                               electrons: 80

$^{88}_{38}\text{Sr}$  } protons: 38  
                               neutrons: 50  
                               electrons: 38

⑤ rubidi-85  $84.912 \text{ u}$   $72.17\%$   
 rubidi-87  $86.909 \text{ u}$   $100 - 72.17 = 27.83\%$   
 $\text{Ar Rb} = \frac{84.912 \cdot 72.17 + 86.909 \cdot 27.83}{100} = 85.47 \text{ u}$

⑥  $\text{Al}^{3+}$ : àtom d'alumini que ha perdut 3 electrons  
 $\text{S}^{2-}$ : àtom de sofre que ha guanyat 2 electrons  
 $\text{Mg}^{2+}$ : àtom de magnesi que ha perdut 2 electrons  
 $\text{Cl}^-$ : àtom de clor que ha guanyat 1 electro  
 $\text{SO}_4^{2-}$ : conjunt d'un àtom de sofre i 4 d'oxigen que ha guanyat 2 electrons.

⑦  $\text{Al}_2(\text{SO}_4)_3$   $\text{C}_4\text{H}_8\text{O}_4$   
 $\text{Al}: 27 \cdot 2 = 54$   
 $\text{S}: 32 \cdot 3 = 96$   
 $\text{O}: 16 \cdot 12 = 192$   
 $\underline{342}$   
 $\text{Mr}(\text{Al}_2(\text{SO}_4)_3) = 342$

$\text{C}: 12 \cdot 4 = 48$   
 $\text{H}: 1 \cdot 8 = 8$   
 $\text{O}: 16 \cdot 4 = 64$   
 $\underline{120}$   
 $\text{Mr}(\text{C}_4\text{H}_8\text{O}_4) = 120$

⑧ Com s'anomena el pas de l'estat gasós al líquid? I el pas directe de l'estat sòlid al gasós?

⑨ Què passa mentre una substància pura bull?

⑩ Què són els isòtops?

$$① \quad 300 \text{ g Fe} \cdot \frac{1 \text{ mol Fe}}{56 \text{ g Fe}} \cdot \frac{6022 \cdot 10^{23} \text{ àtoms Fe}}{1 \text{ mol Fe}} = \boxed{3'226 \cdot 10^{24} \text{ àtoms Fe}}$$

$$② \quad 2 \cdot 10^{21} \text{ molècules CaCO}_3 \cdot \frac{1 \text{ mol CaCO}_3}{6022 \cdot 10^{23} \text{ molècules CaCO}_3} \cdot \frac{100 \text{ g CaCO}_3}{1 \text{ mol CaCO}_3} = \boxed{0'3321 \text{ g CaCO}_3}$$

$\text{Ca: } 40 \cdot 1 = 40$   
 $\text{C: } 12 \cdot 1 = 12$   
 $\text{O: } 16 \cdot 3 = 48$   
 $\hline 100$

$$③ \quad 500 \text{ g O}_2 \cdot \frac{1 \text{ mol O}_2}{32 \text{ g O}_2} \cdot \frac{22'4 \text{ l O}_2}{1 \text{ mol O}_2} = \boxed{350 \text{ l O}_2}$$

|                         | IUPAC               | Stock                |
|-------------------------|---------------------|----------------------|
| ④ $\text{Na}_2\text{O}$ | Òxid de disodi      | Òxid de sodi         |
| $\text{CuO}$            | Òxid de coure       | Òxid de coure (II)   |
| $\text{Ni}_2\text{O}_3$ | Triòxid de diníquel | Òxid de níquel (III) |
| $\text{Cl}_2\text{O}_7$ | Heptaòxid de diclor | Òxid de clor (VII)   |
| $\text{PbO}$            | Òxid de plom        | Òxid de plom (II)    |

|                     | IUPAC                 | Stock                   |
|---------------------|-----------------------|-------------------------|
| ⑤ $\text{Al(OH)}_3$ | Trihidròxid d'alumini | Hidròxid d'alumini      |
| $\text{Fe(OH)}_2$   | Dihidròxid de ferro   | Hidròxid de ferro (II)  |
| $\text{HgOH}$       | Hidròxid de mercuri   | Hidròxid de mercuri (I) |
| $\text{CoH}_3$      | Trihidru de cobalt    | Hidru de cobalt (III)   |
| $\text{SnBr}_4$     | Tetrabromur d'estany  | Bromur d'estany (IV)    |

|                       |                         |                         |                      |
|-----------------------|-------------------------|-------------------------|----------------------|
| ⑥ Òxid de liti        | $\text{Li}_2\text{O}$   | Hidròxid de magnesi     | $\text{Mg(OH)}_2$    |
| Òxid de coure (I)     | $\text{Cu}_2\text{O}$   | Dihidròxid d'estronci   | $\text{Sr(OH)}_2$    |
| Òxid de níquel (III)  | $\text{Ni}_2\text{O}_3$ | Hidròxid de cobalt (II) | $\text{Co(OH)}_2$    |
| Pentaòxid de diclor   | $\text{Cl}_2\text{O}_5$ | Hidru de plom (IV)      | $\text{PbH}_4$       |
| Triòxid de dinitrogen | $\text{N}_2\text{O}_3$  | Sulfur de potassi       | $\text{K}_2\text{S}$ |

⑦ Què és un mol?

⑧ Què és la pressió estàndard?

⑨ Què és un clorur?

⑩ Què és un àcid? escriu el nom i la fórmula de tres hidràcids i tres oxaàcids.

① 5%

$$600 \text{ g dissolució} \cdot \frac{5 \text{ g NaCl}}{100 \text{ g dissolució}} = \boxed{30 \text{ g NaCl}}$$

② 10 g sucre  
600 cm<sup>3</sup> solució

$$1 \text{ L solució} \cdot \frac{1000 \text{ cm}^3 \text{ solució}}{1 \text{ L solució}} \cdot \frac{10 \text{ g sucre}}{600 \text{ cm}^3 \text{ solució}} = 16,67 \text{ g sucre}$$

$$\boxed{\text{Concentració} = 16,67 \frac{\text{g}}{\text{L}}}$$

③  $\frac{\text{mols}}{\text{L}} = ?$ 4 g KNO<sub>3</sub>550 cm<sup>3</sup> solució

$$39 + 14 + 16 \cdot 3 = 101$$

$$1 \text{ L solució} \cdot \frac{1000 \text{ cm}^3 \text{ solució}}{1 \text{ L solució}} \cdot \frac{4 \text{ g KNO}_3}{550 \text{ cm}^3 \text{ solució}} \cdot \frac{1 \text{ mol KNO}_3}{101 \text{ g KNO}_3} = 0,07201 \frac{\text{mol}}{\text{L}}$$

$$\boxed{\text{Concentració} = 0,07201 \frac{\text{mols}}{\text{L}}}$$

④



⑤



⑥



⑦



⑧ Què és una dissolució saturada?

⑨ Què és el % en massa d'una dissolució?

⑩ Què és una reacció química?

①



$$\begin{array}{r} 27 \cdot 2 = 54 \\ 16 \cdot 3 = 48 \\ \hline 102 \end{array}$$

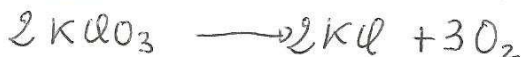
$$200 \text{ g Al} \frac{1 \text{ mol Al}}{27 \text{ g Al}} \frac{2 \text{ mol Al}_2\text{O}_3}{4 \text{ mol Al}} \frac{102 \text{ g Al}_2\text{O}_3}{1 \text{ mol Al}_2\text{O}_3} = \boxed{377.8 \text{ g Al}_2\text{O}_3}$$

②



$$50 \text{ g Cd} \frac{1 \text{ mol Cd}}{112 \text{ g Cd}} \frac{1 \text{ mol H}_2}{1 \text{ mol Cd}} \frac{22.4 \text{ l H}_2}{1 \text{ mol H}_2} = \boxed{10 \text{ l H}_2}$$

③



$$\begin{array}{r} 39 \cdot 1 = 39 \\ 35.5 \cdot 1 = 35.5 \\ 16 \cdot 3 = 48 \\ \hline 122.5 \end{array}$$

$$125 \text{ g KClO}_3 \frac{1 \text{ mol KClO}_3}{122.5 \text{ g KClO}_3} \frac{2 \text{ mol KCl}}{2 \text{ mol KClO}_3} \frac{74.5 \text{ g KCl}}{1 \text{ mol KCl}} = \boxed{76.02 \text{ g KCl}}$$

④



$$8 \text{ Kg carbo} \frac{1000 \text{ g carbo}}{1 \text{ Kg carbo}} \frac{12 \text{ g C}}{100 \text{ g carbo}} \frac{1 \text{ mol C}}{12 \text{ g C}} \frac{1 \text{ mol CO}_2}{1 \text{ mol C}} \frac{22.7 \text{ l CO}_2}{1 \text{ mol CO}_2} = \boxed{13.620 \text{ l CO}_2}$$

⑤



$$20 \text{ l CH}_4 \frac{1 \text{ mol CH}_4}{22.4 \text{ l CH}_4} \frac{2 \text{ mol O}_2}{1 \text{ mol CH}_4} \frac{6.022 \cdot 10^{23} \text{ molècules O}_2}{1 \text{ mol O}_2} = \boxed{1.075 \cdot 10^{24} \text{ molècules O}_2}$$

⑥



$$\begin{array}{r} 12 \cdot 6 = 72 \\ 1 \cdot 14 = 14 \\ \hline 86 \end{array}$$

$$4 \text{ Kg C}_6\text{H}_{14} \frac{1000 \text{ g C}_6\text{H}_{14}}{1 \text{ Kg C}_6\text{H}_{14}} \frac{1 \text{ mol C}_6\text{H}_{14}}{86 \text{ g C}_6\text{H}_{14}} \frac{14 \text{ mol H}_2\text{O}}{2 \text{ mol C}_6\text{H}_{14}} \frac{18 \text{ g H}_2\text{O}}{1 \text{ mol H}_2\text{O}} = \boxed{5.860 \text{ g H}_2\text{O}}$$

⑦ Com es va formar el petroli?

⑧ Quins són els principals problemes de l'energia nuclear?

⑨ Indica tres tipus d'energies renovables, i explica breument cada una d'elles.

⑩ Què és l'efecte hivernacle?

$$\begin{aligned} \textcircled{1} \quad Q_1 &= 2 \text{ nC} = 2 \cdot 10^{-9} \text{ C} \\ Q_2 &= 6 \text{ nC} = 6 \cdot 10^{-9} \text{ C} \\ r &= 500 \text{ mm} = 0.5 \text{ m} \end{aligned}$$

$$F = k \frac{Q_1 \cdot Q_2}{r^2} = 9 \cdot 10^9 \frac{2 \cdot 10^{-9} \cdot 6 \cdot 10^{-9}}{0.5^2} = 4.32 \cdot 10^{-7} \text{ N}$$

$$\begin{aligned} \textcircled{2} \quad Q &= 15 \mu\text{C} = 15 \cdot 10^{-6} \text{ C} \\ F &= 3 \cdot 10^{-4} \text{ N} \end{aligned}$$

$$E = \frac{F}{Q} = \frac{3 \cdot 10^{-4}}{15 \cdot 10^{-6}} = 20 \frac{\text{N}}{\text{C}}$$

$$\begin{aligned} \textcircled{3} \quad \Delta V &= 50 \text{ V} \\ I &= 500 \text{ mA} \frac{1 \text{ A}}{1000 \text{ mA}} = 0.5 \text{ A} \\ \Delta t &= 3 \text{ h} \frac{3600 \text{ s}}{1 \text{ h}} = 10.800 \text{ s} \end{aligned}$$

$$Q = I \cdot \Delta t = 0.5 \cdot 10.800 = 5.400 \text{ C}$$

$$W = Q \cdot \Delta V = 5.400 \cdot 50 = 270.000 \text{ J}$$

$$\begin{aligned} \textcircled{4} \quad R &= 30 \Omega \\ Q &= 15.000 \text{ C} \\ \Delta t &= 20 \text{ min} \frac{60 \text{ s}}{1 \text{ min}} = 1200 \text{ s} \end{aligned}$$

$$I = \frac{Q}{\Delta t} = \frac{15.000}{1200} = 12.5 \text{ A}$$

$$\Delta V = I \cdot R = 12.5 \cdot 30 = 375 \text{ V}$$

$$\begin{aligned} \textcircled{5} \quad \Delta V &= 12 \text{ V} \\ I &= 750 \text{ mA} = 0.75 \text{ A} \\ \Delta t &= 45 \text{ min} \frac{60 \text{ s}}{1 \text{ min}} = 2700 \text{ s} \end{aligned}$$

$$R = \frac{\Delta V}{I} = \frac{12}{0.75} = 16 \Omega$$

$$W = I^2 \cdot R \cdot \Delta t = 0.75^2 \cdot 16 \cdot 2700 = 24.300 \text{ J}$$

$$\begin{aligned} \textcircled{6} \quad P &= 100 \text{ W} = 0.1 \text{ kW} \\ \Delta t &= 5 \text{ anys} \frac{365 \text{ dies}}{1 \text{ any}} \frac{24 \text{ h}}{1 \text{ dia}} = 43.800 \text{ h} \end{aligned}$$

$$1 \text{ kWh} = 0.15 \text{ €}$$

$$W = P \cdot \Delta t = 0.1 \text{ kW} \cdot 43800 \text{ h} = 4.380 \text{ kWh} \frac{0.15 \text{ €}}{1 \text{ kWh}} = 657 \text{ €}$$

7 Què diu la llei de Coulomb?

8 En relació a la conducció del corrent elèctric, com es classifiquen els materials?

9 Què és la resistència d'un conductor?

10 Què diu la llei de Joule?

$$\textcircled{1} \quad 500 \text{ mm} \frac{1 \text{ m}}{1000 \text{ mm}} \frac{1 \text{ km}}{100 \text{ m}} = 0'005 \text{ km} \quad // \quad 3.000 \text{ dm} \frac{1 \text{ m}}{10 \text{ dm}} \frac{1 \text{ km}}{1000 \text{ m}} = 0'3 \text{ km}$$

$$40 \text{ Gs} \frac{1000 \text{ Ms}}{1 \text{ Gs}} = 40.000 \text{ Ms} \quad // \quad 60 \text{ dam}^2 \frac{100 \text{ m}^2}{1 \text{ dam}^2} = 6000 \text{ m}^2 \quad // \quad 3.000 \text{ cm}^3 \frac{1 \text{ m}^3}{10^6 \text{ cm}^3} = 3 \cdot 10^{-3} \text{ m}^3$$

$$\textcircled{2} \quad \begin{array}{ll} Z = 80 & \text{protons} = 80 \\ A = 201 & \text{neutrons} = 201 - 80 = 121 \\ & \text{electrons} = 80 \end{array}$$

$$\textcircled{3} \quad \begin{array}{l} 100 - 72'17 = \\ = 27'83 \end{array} \quad \boxed{Ar R_b = \frac{84'912 \cdot 72'17 + 86'909 \cdot 27'83}{100} = 85'47 \text{ u}}$$

$$\textcircled{4} \quad 25 \text{ g Al} \frac{1 \text{ mol Al}}{27 \text{ g Al}} \frac{6022 \cdot 10^{23} \text{ atoms Al}}{1 \text{ mol Al}} = \boxed{5'576 \cdot 10^{23} \text{ atoms Al}}$$

|                      |                         |                         |                          |
|----------------------|-------------------------|-------------------------|--------------------------|
| Òxid de potassi      | $\text{K}_2\text{O}$    | Hidròxid de cobalt (II) | $\text{Co}(\text{OH})_2$ |
| Òxid de calci        | $\text{CaO}$            | Trihidròxid de ferro    | $\text{Fe}(\text{OH})_3$ |
| Òxid de níquel (III) | $\text{Ni}_2\text{O}_3$ | Tetrahidròxid de plom   | $\text{Pb}(\text{OH})_4$ |
| Pentaòxid de diclor  | $\text{Cl}_2\text{O}_5$ | Hidròxid d'alumini      | $\text{Al}(\text{OH})_3$ |
| Diòxid de carboni    | $\text{CO}_2$           | Hidròxid de magnesi     | $\text{Mg}(\text{OH})_2$ |

$$\textcircled{6} \quad 100 \text{ g solució} \frac{20 \text{ g sucre}}{420 \text{ g solució}} = 4'762 \text{ g sucre} \quad \boxed{\text{Concentració} = 4'762 \%}$$

$$\textcircled{7} \quad \begin{array}{c} 2 \text{ Mg} + \text{O}_2 \longrightarrow 2 \text{ MgO} \\ 30 \text{ g Mg} \frac{1 \text{ mol Mg}}{24'3 \text{ g Mg}} \frac{1 \text{ mol O}_2}{2 \text{ mol Mg}} \frac{32 \text{ g O}_2}{1 \text{ mol O}_2} = \boxed{19'75 \text{ g O}_2} \end{array}$$

$$\textcircled{8} \quad \begin{array}{c} 2 \text{ C}_4\text{H}_{10} + 13 \text{ O}_2 \longrightarrow 8 \text{ CO}_2 + 10 \text{ H}_2\text{O} \\ 600 \text{ g C}_4\text{H}_{10} \frac{1 \text{ mol C}_4\text{H}_{10}}{58 \text{ g C}_4\text{H}_{10}} \frac{8 \text{ mol CO}_2}{2 \text{ mol C}_4\text{H}_{10}} \frac{22'4 \text{ L CO}_2}{1 \text{ mol CO}_2} = \boxed{926'9 \text{ L CO}_2} \end{array}$$

$\begin{array}{l} 12 \cdot 4 = 48 \\ 1 \cdot 10 = 10 \\ \hline 58 \end{array}$

$$\textcircled{9} \quad \begin{array}{ll} \Delta V = 125 \text{ V} & I = \frac{\Delta V}{R} = \frac{125}{60} = 2'083 \text{ A} \\ R = 60 \Omega & \\ \Delta t = 2 \text{ h} \frac{3600 \text{ s}}{1 \text{ h}} = 7200 \text{ s} & \boxed{Q = I \cdot \Delta t = 2'083 \cdot 7200 = 15.000 \text{ C}} \end{array}$$

$\textcircled{10}$  Què és el nombre màssic d'un àtom?

$$\textcircled{1} \quad 5000 \text{ mm} \frac{1 \text{ m}}{10^3 \text{ mm}} \frac{10 \text{ dm}}{1 \text{ m}} = 50 \text{ dm} // 300.000 \text{ s} \frac{1 \text{ ks}}{10^3 \text{ s}} = 300 \text{ ks}$$

$$0,3 \text{ Ms} \frac{10^6 \text{ s}}{1 \text{ Ms}} \frac{1 \text{ ks}}{10^3 \text{ s}} = 300 \text{ ks} // 500.000 \text{ m}^2 \frac{1 \text{ hm}^2}{10^4 \text{ m}^2} = 50 \text{ hm}^2$$

$$3 \cdot 10^9 \text{ cm}^3 \frac{1 \text{ m}^3}{10^6 \text{ cm}^3} = 3.000 \text{ m}^3$$

$$\textcircled{2} \quad \begin{array}{l} Z = 47 \\ A = 108 \end{array} \quad \begin{array}{l} \text{protons: } 47 \\ \text{neutrons: } 61 \\ \text{electrons: } 47 \end{array}$$

$$\textcircled{3} \quad \boxed{\text{Ar Br} = \frac{78'919 \cdot 50'69 + 80'916 \cdot 49'31}{100} = 79'90 \text{ U}}$$

$$\textcircled{4} \quad 5 \cdot 10^{24} \text{ àtoms Ag} \frac{1 \text{ mol Ag}}{6022 \cdot 10^{23} \text{ àtoms Ag}} \frac{108 \text{ g Ag}}{1 \text{ mol Ag}} = \boxed{896'7 \text{ g Ag}}$$

|                     |                         |                        |                          |
|---------------------|-------------------------|------------------------|--------------------------|
| òxid de potassi     | $\text{K}_2\text{O}$    | Hidroxid de magnesi    | $\text{Mg}(\text{OH})_2$ |
| òxid de ferro (III) | $\text{Fe}_2\text{O}_3$ | Trihidroxid de níquel  | $\text{Ni}(\text{OH})_3$ |
| òxid d'alumini      | $\text{Al}_2\text{O}_3$ | Tetrahidroxid d'estany | $\text{Sn}(\text{OH})_4$ |
| Pentaòxid de diclor | $\text{Cl}_2\text{O}_5$ | Hidroxid d'alumini     | $\text{Al}(\text{OH})_3$ |
| Diòxid de carboni   | $\text{CO}_2$           | Hidroxid de coure (II) | $\text{Cu}(\text{OH})_2$ |

$$\textcircled{6} \quad 100 \text{ g solució} \frac{20 \text{ g sucre}}{520 \text{ g solució}} = 3'846 \text{ g sucre}$$

$$\boxed{\text{Concentració} = 3'846 \%}$$

$$\textcircled{7} \quad \begin{array}{l} 2 \text{ Mg} + \text{O}_2 \rightarrow 2 \text{ MgO} \\ 10 \text{ g Mg} \frac{1 \text{ mol Mg}}{24'3 \text{ g Mg}} \frac{2 \text{ mol MgO}}{2 \text{ mol Mg}} \frac{40'3 \text{ g MgO}}{1 \text{ mol MgO}} = \boxed{16'58 \text{ g MgO}} \end{array} \quad \begin{array}{r} 24'3 \\ 16 \\ \hline 40'3 \end{array}$$

$$\textcircled{8} \quad \begin{array}{l} \text{C}_3\text{H}_8 + 5 \text{ O}_2 \rightarrow 3 \text{ CO}_2 + 4 \text{ H}_2\text{O} \\ 800 \text{ g C}_3\text{H}_8 \frac{1 \text{ mol C}_3\text{H}_8}{44 \text{ g C}_3\text{H}_8} \frac{4 \text{ mol H}_2\text{O}}{1 \text{ mol C}_3\text{H}_8} \frac{18 \text{ g H}_2\text{O}}{1 \text{ mol H}_2\text{O}} = \boxed{1.309 \text{ g H}_2\text{O}} \end{array} \quad \begin{array}{r} 12 \cdot 3 = 36 \\ 1 \cdot 8 = 8 \\ \hline 44 \end{array}$$

9) Què és el nombre atòmic d'un element?

10) Què és la molaritat d'una dissolució?