

Guia de correção

Perg.	Resposta	Cotação	Parc.	Total
1. a) Uma (1).				
b)			10	
	$-e_1 + e_2 = R_1 I + R I + R_2 I$ <p style="text-align: center;">ou</p> $e_1 - e_2 = -R_1 I - R I - R_2 I$			
		20		
c)	$-e_1 + e_2 = R_1 I + R I + R_2 I \Leftrightarrow -e_1 + e_2 = I(R_1 + R + R_2)$ $I = \frac{-e_1 + e_2}{R_1 + R + R_2} \Rightarrow I = \frac{-6 + 18}{2 + 3 + 1} \Leftrightarrow I = \frac{12}{6} \textcircled{10} \Leftrightarrow$ $\Leftrightarrow I = 2 \text{ A } \textcircled{5}$	15	45	
2. a) $\Phi = 7 \text{ eV}$		5		
b)	$\Phi = \frac{h c}{\lambda_0} \Rightarrow \lambda_0 = \frac{h c}{\Phi} \textcircled{10}$ $\Phi = 7 \text{ eV} = 7 \times 1,6 \times 10^{-19} \text{ J} \Leftrightarrow \Phi = 11,2 \times 10^{-19} \text{ J } \textcircled{2}$ $\lambda_0 = \frac{7 \times 10^{-34} \times 3 \times 10^8}{7 \times 1,6 \times 10^{-19}} \Leftrightarrow$ $\Leftrightarrow \lambda_0 = 1,875 \times 10^{-7} \text{ m } \textcircled{3}$	15		
c)	$\lambda = 1,875 \times 10^{-7} \text{ m}$ (igual ao comprimento de onda máximo)	5	25	
3. a) $t = 20 \text{ s}$		10		
b) $a = ?$				
	$v = 20 \text{ m s}^{-1}$			
	$t = 20 \text{ s}$			
	$a = \frac{v}{t} \Rightarrow a = \frac{20}{20} \textcircled{8} \Leftrightarrow$ $\Leftrightarrow a = 1 \text{ m s}^{-2} \textcircled{2}$	10		
c)	$x(t)_A = x_0 + v_0 t + \frac{1}{2} a t^2 ; \quad x_0 = 0 ; \quad v_0 = 0 \textcircled{5}$ $\Rightarrow x(t)_A = 0,5 t^2 \textcircled{5}$ $x(t)_B = x_0 + v t ; \quad x_0 = 0 \textcircled{5}$ $\Rightarrow x(t)_B = 20 t \textcircled{5}$	20	40	
4. a) Desintegração β^- .		5		
	$^{24}_{11}\text{Na} \longrightarrow ^{24}_{12}\text{Mg} + {}^0_{-1}\text{e}$	5		

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b) $T_{1/2} = 15 \text{ h}$

$$t = 2,5 \text{ dias} = 2,5 \times 24 \text{ h} = 60 \text{ h}$$

$$\begin{aligned} n &= \frac{t}{T_{1/2}} \Rightarrow n = \frac{60}{15} \textcircled{8} \Leftrightarrow \\ &\Leftrightarrow n = 4 \textcircled{2} \end{aligned}$$

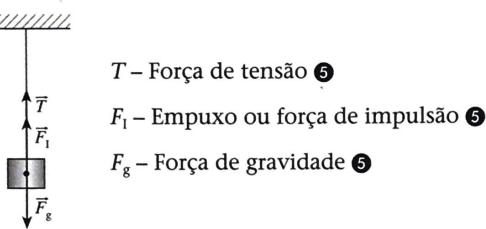
10

c) $A_0 = 0,08 \text{ Bq}; A = ?$

$$\begin{aligned} \frac{A}{A_0} &= \frac{1}{2^n} \Rightarrow \frac{A}{0,08} = \frac{1}{2^4} \textcircled{8} \Leftrightarrow \\ &\Leftrightarrow A = \frac{0,08}{2^4} \Leftrightarrow A = \frac{0,08}{16} \Leftrightarrow \\ &\Leftrightarrow A = 5 \times 10^{-3} \text{ Bq} \textcircled{2} \end{aligned}$$

10 30

5. a)



15

b) $m = 40 \text{ kg}$

$$V = 5 \times 10^{-2} \text{ m}^3$$

$$\rho_L = 760 \text{ kg m}^{-3}$$

O volume do corpo é igual ao volume do líquido deslocado.

$$T + F_l - F_g = 0 \Rightarrow T = F_g - F_l \textcircled{4}$$

$$F_g = m g \Rightarrow F_g = 40 \times 10 \Leftrightarrow F_g = 400 \text{ N} \textcircled{2}$$

$$F_l = \rho V g \Rightarrow F_l = 760 \times 5 \times 10^{-2} \times 10 \Leftrightarrow F_l = 380 \text{ N} \textcircled{2}$$

$$T = 400 - 380 \Leftrightarrow T = 20 \text{ N} \textcircled{2}$$

10 25

6. a) Isobárica.

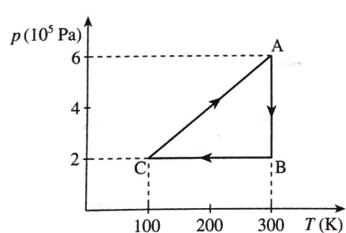
10

b) $T_B = ?$

$$T_A = 300 \text{ K} \Rightarrow T_A = T_B = 300 \text{ K} \text{ (processo isotérmico)}$$

10

c)



3 × 5 35