Vestibular Estadual 2016
UERJ UEZO ABM. D. PEDRO II

PADRÃO DE RESPOSTAS

(VALOR POR QUESTÃO: 2,00 PONTOS)

Questão	Resposta
1	$v_r = (5 + 3) + (5 - 3) = 10$ m/s $s = v \times t \rightarrow 500 = 10 \times t \rightarrow t = \frac{500}{10} = 50$ s
2	$\Delta L = L_0 \times \alpha \times \Delta\theta \rightarrow 13 = 4 \times 10^4 \times 1 \times 10^{-5} \times \Delta\theta$ $\Delta\theta = \frac{13}{4 \times 10^{-1}} = 32{,}5\ ^oC$
3	$i_1 \times p_1 = i_2 \times p_2 \rightarrow \frac{o}{20} \times p_1 = \frac{o}{2} \times p_2$ $p_2 = \frac{p_1}{10}$
4	$\tau = q\,(V_A - V_B)$ $\tau = 400 \times 10^{-6}\,(100 - 20) \rightarrow \tau = 3{,}2 \times 10^{-2}$ J
5	$A_1 \overset{N}{=} I_1 = \frac{120 + 100}{2} \times 5 = 550$ N.s $A_2 \overset{N}{=} I_2 = 100 \times 100 = 10000$ N.s $I_T = I_1 + I_2 = 550 + 10000 = 10550$ N.s
6	$E = p \times t \rightarrow 70 \times 10 \times 6 \times 365 = 1533000$ Wh $E = 1533$ kWh
7	$v = 108$ km/h $\rightarrow v = 30$ m/s $m_p = 1000 \times 70 = 70000$ kg; $m_c = 150 \times 1000 = 150000$ kg $E_c = \frac{mv^2}{2} = \frac{(70 + 150 + 450) \times 1000 \times (30)^2}{2} = 301500000$ J $= 301{,}5$ MJ
8	$E_c = \frac{1}{2} m \times v^2 \rightarrow E_c = \frac{1}{2} \times 100000 \times (20)^2 = 2 \times 10^7$ J $Q = Q_1 + Q_2$ $2 \times 10^7 \times 0{,}24 = m \times 1 \times (100 - 20) + 540 \times m \rightarrow m = \frac{2 \times 10^7 \times 0{,}24}{620} = 7740$ g $= 7{,}74$ kg
9	$T = T_0 + 10$ $T_0 = 273 + 25 = 298$ K $\frac{P_0 + \Delta P}{T_0 + 10} = \frac{P_0}{T_0}$ $\Delta P = 10 \times \frac{P_0}{T_0}$ $\frac{\Delta P}{P_0} \times 100 = 3{,}36\%$
10	$E = P \times t = U \times i \times t = 12 \times 300 \times 2 = 7200$ J $E = 7200$ J $= 7{,}2$ kJ