

نوین کنکور

کنکور

امتحان نهایی

**نوین کنکور
شرط لازم و کافی
برای موفقیت**

novinkonkor.com

تحليل فيزيك كنكور تير ۱۴۰۴ ارشد تجربی - مهندس قنبریان

۲(۴۶)

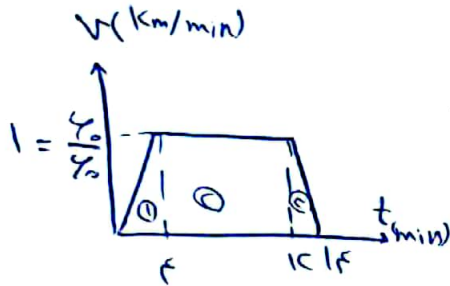
$$\frac{E_1}{E_2} = \frac{\lambda_2}{\lambda_1} = \frac{400 \text{ nm}}{500 \text{ nm}} = 0.8 \quad \leftarrow E = hf = h\frac{c}{\lambda} \Rightarrow E \propto \frac{1}{\lambda}$$

۳(۴۷)

۱(۴۸)

$$\phi = \frac{1}{2} \pi$$

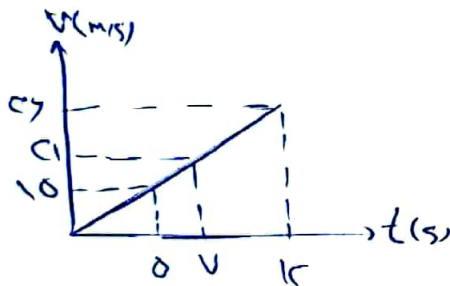
۴(۴۹)



$$s_1 = \frac{1 \times 2}{2} = 1, \quad s_2 = 10 \times 1 = 10 \rightarrow 10.5 \text{ km}$$

$$s_3 = \frac{(10+0) \times 2}{2} = 10$$

۲(۵۰)



$$v_{14} = \frac{15 \times v}{2} = v = 24$$

$$\frac{(10+20) \times 5}{2} = 75 \rightarrow \checkmark$$

۳(۵۱) - کم نمودار v-t

$$|V_{\text{avg}}| = \frac{\Delta v}{\Delta t} = \left| \frac{10 - 20}{15} \right| = 0.67 \text{ m/s}$$

۳(۵۲)

$$v_A = \frac{1}{2}t - 10 \rightarrow a_A = \frac{1}{2} - 0 = 0.5 \rightarrow a_A = -1.0 \rightarrow t = 0.5$$

۲(۵۳)

$$v_B = -\frac{1}{2}t + 10 \rightarrow a_B = -\frac{1}{2} + 0 = -0.5 \rightarrow t = 0.5 \rightarrow a_B = 0.5$$

0.5 m

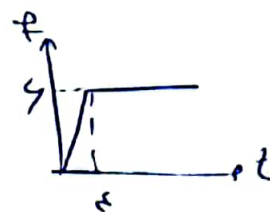
$$F_N = mg - F_c \uparrow \Rightarrow F_N \downarrow \rightarrow$$

اگر بار تغییر می کند

۴(۵۴)

$$F = \frac{v}{r} = \frac{2 \times 2 \times 10}{1} = 4 \text{ N}$$

$$F = \frac{v}{r} = 4 \Rightarrow t = 5$$

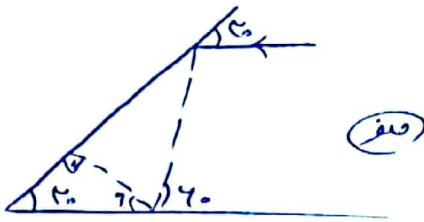


۱(۵۵)

$$W = mg \rightarrow r \times \left(\frac{1}{r}\right)^2 = \frac{1}{r}$$

$$g \rightarrow \frac{M}{r^2}$$

۲(۵۶)



(صف)

مهندس قلعویان - مدرس فیزیک

۴(۵۷)

$$E = K + U \rightarrow U = E - K$$

۱(۵۸)

$$E = \frac{1}{2} K n^2 \rightarrow E = \frac{1}{2} \times 500 \times 4^2 \times 10^{-6} = 0.4 J \Rightarrow U = 0.18 J$$

$$K = \frac{1}{2} m v^2 = \frac{1}{2} \times 5 \times 0.4^2 = \frac{14}{100}$$

$$v_{max} = A\omega \rightarrow v_{max} = \frac{A \times 2\pi}{T} \Rightarrow T = \frac{A \times 2\pi}{v_{max}}$$

$$\omega = \frac{2\pi}{T}$$

۴(۵۹)

$$T = \frac{5 \times 10^{-9} \times 2 \times \frac{2\pi}{5}}{55 \times 10^{-1}} = 0.15$$

۳(۶۰)

$$E = hf = \frac{hc}{\lambda} \rightarrow P t = \frac{n h c}{\lambda} \rightarrow n = \frac{P t \lambda}{h c} \Rightarrow n = \frac{443 \times 10^{-9} \times 40 \times 400 \times 10^{-9}}{440 \times 10^{-34} \times 3 \times 10^8} = 1.5 \times 10^5$$

۲(۶۱)

$$E = P t$$

$$\frac{1}{\lambda_1} = R \left(\frac{1}{\infty} - \frac{1}{\infty^2} \right) \rightarrow \lambda_1 = \frac{20 \times 10^9}{11R}$$

۱(۶۲)

$$n = 4$$

$$= \frac{34}{11}$$

$$\frac{1}{\lambda_c} = R \left(\frac{1}{\infty} - \frac{1}{\infty^2} \right) \Rightarrow \lambda_c = \frac{20}{R}$$

$$n = \infty$$

$$9 \times 10^9 \times \frac{39^2}{9 \times 10^{-6}} = 1.0 \times 10^{-9} \times 1.0 \rightarrow q^2 = 50 \times 10^{-12}$$

۲(۶۳)

$$\rightarrow q = 5 \times 10^{-11}$$

$$n = \frac{39}{e} = \frac{10 \times 10^{-11}}{1.6 \times 10^{-19}} = 9.1375 \times 10^8$$

$$\frac{F_{rc}}{F_{ic}} = \frac{k q_1 q_2}{k q_1 q_2} \rightarrow \frac{4 \times 10^{-8}}{1 \times 10^{-8}} = \frac{1 q_1}{q_1} \times \frac{1}{1} \rightarrow \frac{q_1}{q_1} = - \frac{4}{1} \quad 2(45)$$

$$\frac{R_A}{R_B} = \frac{\rho_A}{\rho_B} \times \frac{L_A}{L_B} \times \frac{A_B}{A_A} \Rightarrow 1 = 2 \times \frac{A_B}{A_A} \Rightarrow \frac{A_B}{A_A} = \frac{1}{2} \quad 5(46)$$

$$\frac{\rho_A}{\rho_B} = \frac{m_A}{m_B} \times \frac{V_B}{V_A} \rightarrow \frac{L_B}{L_A} \times \frac{A_B}{A_A} \Rightarrow 2 = \frac{m_A}{m_B} \times \frac{1}{2} \rightarrow \frac{m_A}{m_B} = 4$$

$R_1, R_2 \rightarrow$ دراز

$$\Rightarrow R_2 = 4 \Omega, I = \frac{V_0}{1+4} = 2A \quad 3(47)$$

R_1, R_2 موازی $\rightarrow R_{eq}$

جواب 1:

$$I_{R_2} = 1A \rightarrow P_{R_2} = 4 \times 1^2 = 4W$$

$$R_2, R_3 \rightarrow \text{موازی} \rightarrow 12 \Omega \rightarrow \text{موازی} \rightarrow 4 \Omega$$

جواب 2:

$$I = \frac{V_0}{1+4} = 2A \rightarrow I_{4\Omega} = \frac{4}{5} A \rightarrow P_{R_2} = 4 \times \frac{16}{25} = \frac{64}{25} W$$

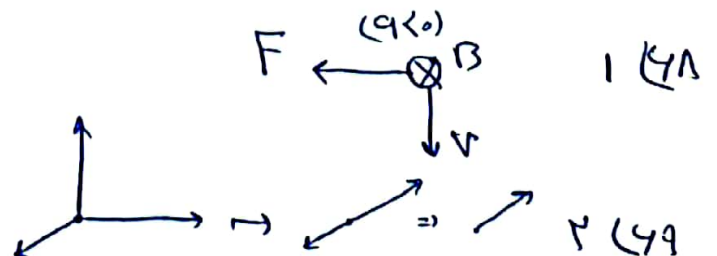
$$P_2 - P_1 = \frac{16}{25} W$$

انجینیر قلوبان - مدرس فیزیک

$$I_{\text{میانگین}} = \frac{V_{\text{میانگین}}}{110} = 0.1A \rightarrow I_{R_2} = 0.1A \rightarrow R_2 = 110 \Omega \quad 5(48)$$

$$V = d \times 1.4 = 1.4V$$

$$V_{\text{کل}} = V_2 \rightarrow V_{R_1} = 4.4V \Rightarrow R_1 = \frac{4.4}{1.4} = 3.14 \Omega$$



$$|I| = \frac{N \Delta \phi}{R \Delta t} = \frac{200 \times 20 \times 10^{-6}}{20 \times 2 \times 10^{-3}} = 1.28 A$$

$$V \Delta \phi \cdot A \Delta B \cos \theta = 20 \times 10^{-6} \times 20 \times 10^{-3} \times 1 = 20 \times 10^{-9} Wb$$

$$V = \frac{m}{\rho} \cdot \frac{F_0}{\frac{F_0}{v_{\pi}}} = \frac{v_{\pi} \lambda}{F_0} = \frac{F_0}{2\pi} \left(\frac{10^2 \cancel{v_{\pi}}}{a^2} \right) \rightarrow a = km \quad f(VI)$$

$$P_0 + \rho g h_c - \rho g h_v = P_{j5} \rightarrow 10^4 \times 10 \times \frac{1}{10} - 10^4 \times 10 \times \frac{1}{10} = P_{j5} \quad 1(V5)$$

$$\hookrightarrow P_{j5} = -\Delta P \quad P = \rho g h \rightarrow -\Delta P = 10^4 \times 10 \times h \Rightarrow h = -1 \text{ mm} \quad \leftarrow \text{فشار بر حسب mm میوه}$$

$$W_f = \Delta K = \frac{1}{2} m (v_c^2 - v_i^2) \rightarrow \frac{1}{2} \times 20 (400 - 0) = 4000 \text{ J} \rightarrow 4 \text{ kJ} \quad 2(V3)$$

$$E_1 = E_c \rightarrow k_1 + U_1 = k_c + U_c \Rightarrow \frac{1}{2} \times 100 = \frac{1}{2} \times 100 + U_c \quad f(V4)$$

$$\Rightarrow U_c = 10 \text{ J}$$

مهندسی مکانیک - درس فیزیک

$$P = \frac{Q}{t} \rightarrow t = \frac{mLv}{P} = \frac{10 \times 2000}{1000} = 20 \text{ s} \rightarrow 20 \text{ s} \quad 1(V5)$$

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