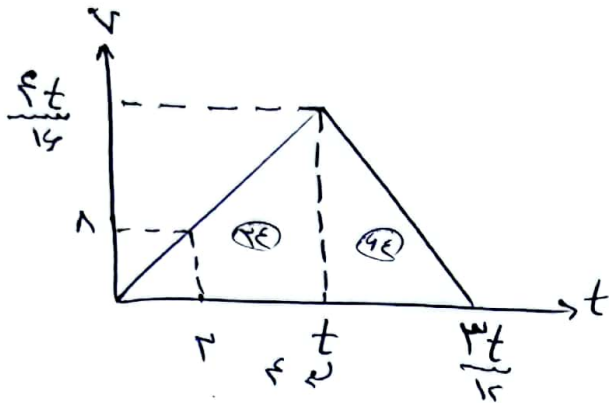


باسم شریعی فیزیک کنکور تجربی ۱۴۰۵ «مهندس حق گویان» www.konkur.in

$$\frac{1}{\lambda} = R \left(\frac{1}{4} - \frac{1}{\infty} \right) \rightarrow \lambda = \frac{4}{R}$$

(۴۶) کوتاه ترین طول موج $\leftarrow n = \infty$



$$4t^r = 96 \rightarrow t^r = 19 \rightarrow t = 4s$$

(۴۷)

$$v_{av} = \frac{11}{10} = 1.1 \text{ m/s}$$

$$v = at + v_0 \xrightarrow{a=0} v = 4t, \dots$$

$$s_{av} = \frac{L}{\Delta t} = \frac{1.6}{14} = \frac{8}{7} \text{ m/s}$$

(۴۸)

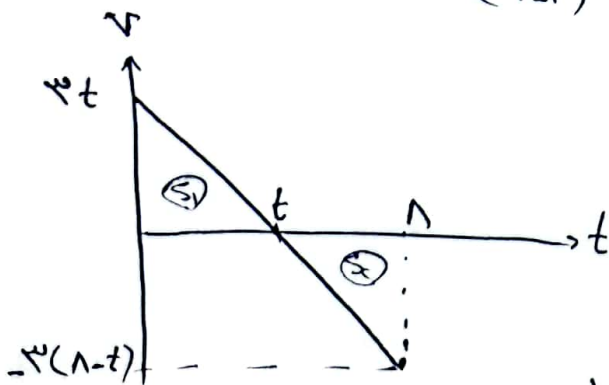
$$v = at + v_0 \quad \begin{cases} v_A = vt - 21 \\ v_B = vt - 10 \end{cases} \quad \Rightarrow \quad t = 31.4s$$

(۴۹)

$$a_A = \frac{21}{t} = 0.67 \text{ m/s}^2, \quad a_B = 0.32 \text{ m/s}^2$$

$$m = \frac{1}{t} at^r + v_0 t + m_0 \xrightarrow{t=5s}$$

$$\frac{1}{5} \times 0.67 \times 5^2 - \frac{1}{5} \times 0.32 \times 5^2 + 0 = 2.5m$$



$$s_1 + s_2 = \Delta l$$

$$t = \Delta t$$

$$v_0 = 12 \text{ m/s}$$

(۵۰)

$$s_{av} = \frac{L}{\Delta t} \rightarrow \frac{\Delta l}{\Delta t} = \frac{L}{\Delta t} \rightarrow L = \Delta l$$

$$F_{\text{net}} = ma \rightarrow -\mu_k mg = ma \Rightarrow -0.2 \times 10 = a \Rightarrow a = -2 \text{ m/s}^2 \quad (51)$$

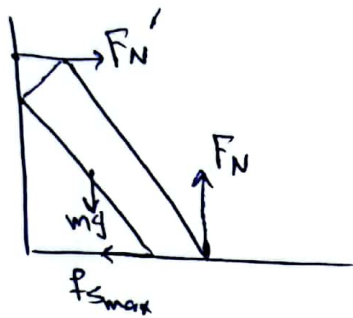
تخلیل حرکت
باری

$$\Delta v = \frac{1}{t} at^2 \Rightarrow 9.25 = \frac{1}{t} \times (-2) t^2 \Rightarrow t = 2.125$$

$$\Delta v = \frac{1}{t} at^2 \Rightarrow 14 = \frac{1}{t} \times a \times 1^2 \Rightarrow a = \frac{1}{t} \text{ m/s}^2 \quad (52)$$

$$\frac{F_e}{\cos \theta} - mg = ma \Rightarrow 2.5 \times \Delta v - 0.1 \times 9.8 = 0.1 \times \frac{1}{t}$$

$$\Delta v = 0.0204 \text{ m} \Rightarrow \Delta v = 2.04 \text{ mm}$$



$$R = \sqrt{F_N'^2 + f_{s \max}^2}$$

$$F_N = mg$$

$$f_{s \max} = \mu_s F_N$$

$$\Rightarrow R = mg \sqrt{1 + \mu_s^2}$$

$$F_N' = f_{s \max} \Rightarrow F_N' = \mu_s mg \quad \mu_s < 1 \quad F_N' < mg \quad (3)$$

$$\frac{T}{f} = 0.1 \Rightarrow T = 0.4 \text{ s} \rightarrow \omega = 10 \frac{\text{rad}}{\text{s}}$$

$$v_{\max} = A\omega \Rightarrow 0.1 = A \times 10 \Rightarrow A = 8 \text{ cm}$$

$$v_{\max} = A\omega = 0.1 \times 14\pi = \frac{14\pi}{10} = \frac{14\pi}{5}$$

$$\omega \cdot r \cdot f = 14\pi$$

$$K_{\max} = \frac{1}{2} m v_{\max}^2 \Rightarrow f \times 10^2 = \frac{1}{2} \times 0.1 \times v_{\max}^2 \Rightarrow v_{\max} = 0.1 \text{ m/s}$$

$$v_{\max} = A\omega$$

$$a_{\max} = A\omega^2$$

$$|a| = \omega^2 r$$

$$\frac{a}{a_{\max}} = \frac{r_{\text{cm}}}{A} \Rightarrow a = \frac{r}{r_{\text{cm}}} \times 1.8 \text{ m/s}^2$$

$$\Delta B = 10 \log \left(\frac{d+20}{d} \right)^2 \Rightarrow 10^{0.7} = 10 \log \frac{d+20}{d} \quad (58)$$

$$10^{0.7} = \frac{d+20}{d}$$

$$10^{0.7} = 10 \times 10^{-2.3} \Rightarrow 5 = \frac{d+20}{d} \Rightarrow 4d = 20 \Rightarrow d = 5 \text{ m}$$

$$10^{0.4} = 2$$

(58) ضریب شکست شیشه برابر نور B بیشتر است پس B باید بیشتر منعکس شود و

خروج دارد برآورد دوائر با برآورد اول

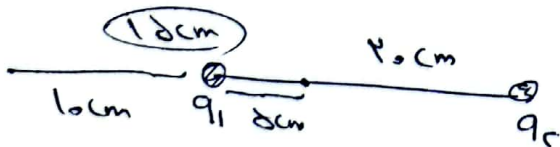
$$\left(\frac{1}{r} \right)^{\frac{4}{3}} = \frac{1}{r} \xrightarrow{\text{فرض}} \left(\frac{1}{r} \right)^{\frac{4}{3}} = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3} \quad (59)$$

$$\left(\frac{1}{r} \right)^{\frac{4}{3} \times \frac{3}{4}}$$

$$\vec{F}_{22} = -2 \vec{F}_{12} \Rightarrow \frac{k|q_c|q_c}{d^2} = 2 \frac{kq_1q_c}{9d^2} \rightarrow |q_c| = 2 \quad (60)$$

$$q_c = -2 \mu\text{C}$$

$$E_1 = 4E_c \Rightarrow \frac{1}{r_1^2} = 4 \times \frac{1}{r_c^2} \Rightarrow r_c = 2r_1 \quad (61)$$



$$U = \frac{1}{r} (V^2) \Rightarrow \frac{U_c}{U_1} = \frac{r_c}{r_1} = 2$$

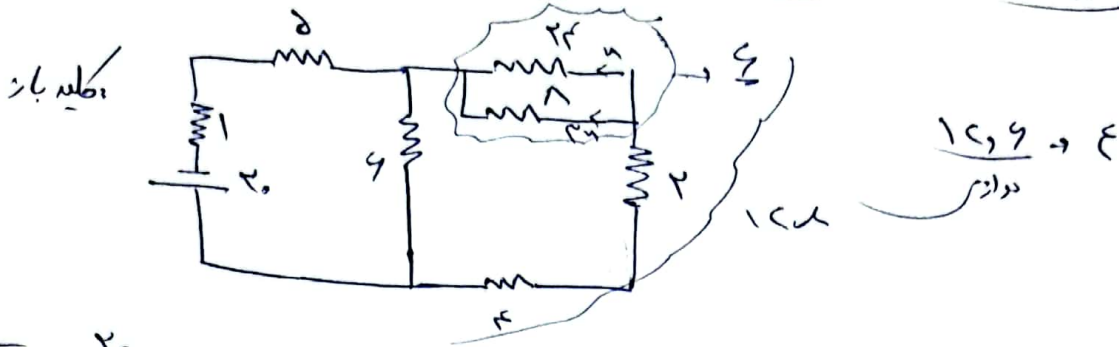
$$U_1 = \frac{1}{r} \frac{q^2}{C} = \frac{20^2}{20}$$

(62)

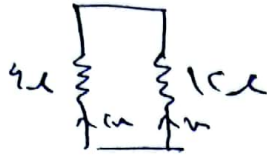
$$\Delta U = U_c - U_1 \Rightarrow \Delta U = 4U_1$$

$$\Rightarrow \Delta U = 4 \times \frac{20^2}{20} = 800 \text{ J}$$

(۶۳)



$$I = \frac{20}{1+9} = 2A$$



$$R_n = 4 \rightarrow n = \frac{4}{2} = 2$$

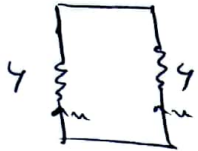
$$R_n = \frac{1}{\frac{1}{4} + \frac{1}{1}} = 4/3$$

$$R_n = \frac{4}{3} \Rightarrow n = \frac{1}{3}$$

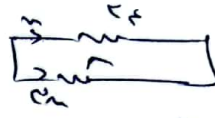
مطلوبه: $\frac{24,8}{9} \rightarrow 2,7$

$\frac{4,4}{9} \rightarrow 0,5$

$$I = \frac{20}{9} A$$



$$R_n = \frac{4}{9}$$



$$R_n = \frac{1}{\frac{1}{4} + \frac{1}{1}} = 4/3 \Rightarrow n = \frac{1}{3} \Rightarrow R_n = 4/3$$

$$\frac{4/3}{1/2} = 2/3$$

$$R_1 = \frac{R_2}{2} \quad R_1, R_2 = 4\Omega$$

$$R_1 = 4\Omega, R_2 = 1\Omega$$

(۶۴)

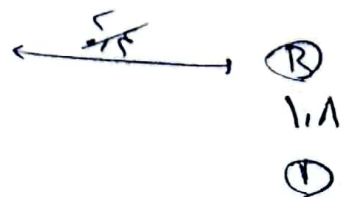
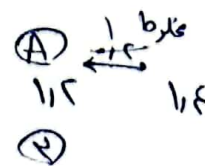
$$R = \frac{\rho L}{A} \Rightarrow \frac{20}{14} \times \frac{1}{8} = \frac{5}{28}$$

(۶۵)

قطر ۲۰ (cm) $\rightarrow \frac{4}{9} \rightarrow A \rightarrow \frac{16}{9} \quad R \propto \frac{1}{A}$

طول ۲۰ (cm) $\rightarrow L \rightarrow \frac{4}{9}$

$$\frac{P_A}{P_B} = \frac{mA}{mB} \times \frac{V_B}{V_A} \Rightarrow \frac{1/2}{2/3} \times \frac{1}{2} = \frac{3}{8}$$



(۶۶)

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$$\rho \Delta P = \rho g \Delta h \Rightarrow 9000 = \rho \times 10 \times 0.12 \Rightarrow \rho = 3000 \quad (97)$$

$$\Delta P = 3000 \times 10 \times 0.12 = 3600 \text{ Pa}$$

$$\frac{P_m = P_n}{\text{هم سطح}} \Rightarrow P_g + 100 \times \rho_{\text{آب}} \times 0.18 = 100 \times \rho_{\text{آب}} \times 0.14 \Rightarrow P_g = 400 \text{ Pa} \quad (98)$$

۱۴۶۰ $\rightarrow$ $\frac{1}{\text{دما}} \text{ Hg}$

$$\eta_{\text{آب}} = 0.01 \times 0.14 = 1.4\% \quad (99)$$

$$Q = mLv \quad \frac{\Delta_0}{100} = \frac{\epsilon_{00}}{C_{00}} \times \frac{L_{VA}}{L_{VB}} \Rightarrow \frac{L_{VA}}{L_{VB}} = 210 \quad (100)$$

$$\theta_c = \frac{0.15 \times 1.18 \times 10^3 + 0.15 \times 900 \times 10^3}{0.15 \times 1.18 + 0.15 \times 900} = 94^\circ \quad (101)$$

$$I = I_{\max} \sin \omega t \Rightarrow I = \epsilon \sin 100\pi t \xrightarrow{t = \frac{\Delta_0}{400}} I = \epsilon \sin \frac{\Delta_0 \pi}{400} \quad (102)$$

$$\omega = \frac{2\pi}{T} = 100\pi \quad \Rightarrow I = 4 \text{ A} \quad I = \frac{\epsilon}{R} \Rightarrow \epsilon = 4 \times 10 = 40 \text{ V}$$

$$B_2 \frac{\mu_0 NI}{l} \approx 10 \times 10^{-2} = \frac{10 \times 10^{-4} \times N \times 10 \times 10^{-1}}{20 \times 10^{-2}} \Rightarrow N = 20 \quad (103)$$

Σ (104)

Σ (105)