

نوین کنکور

کنکور

امتحان نهایی

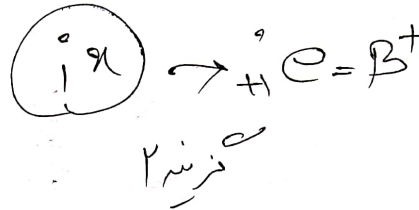
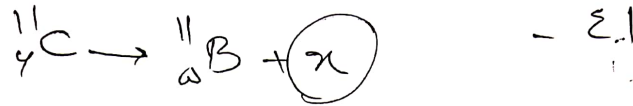
**نوین کنکور
شرط لازم و کافی
برای موفقیت**

novinkonkor.com

استاذ الفيزياء → almasian.physics

استاذ الفيزياء
→ ٥٩١٢٠٧٧٩٧٢٢

باسم شرف سوالات نيزف نور ياض ١٤٠٢



$$h_1 = 0, h_2 = 2 \text{ m} \quad \frac{k_2}{k_1} = 2 \quad - \text{ع ٢}$$

$$E_1 = E_2 \Rightarrow k_1 + \cancel{u_1} = \cancel{k_2} + u_2 \Rightarrow 2k_1 = mgh_2$$

$$\frac{3}{1} \times \frac{1}{2} \times m \times v_1^2 = m \times 1 \times 2 \Rightarrow v_1^2 = 12 \times 10 = 120$$

$$E'_1 = E'_2 \Rightarrow k_1 + u_1 = \cancel{k_2} + u_2 \Rightarrow \frac{1}{2} m \times 120 = m \times 10 \times h$$

$$h = 12 \text{ m}$$

نيزف ٣

- ۲۳

$$L_1 = 900 \text{ m} \quad \theta_1 \quad \Delta \theta = ?$$

$$L_2 = 900.9 \text{ m} \quad \theta_2$$

$$\alpha = 1.25 \times 10^{-5}$$

$$\Delta L = L_1 \alpha \Delta \theta$$

$$9.9 = 900 \times 1.25 \times 10^{-5} \times \Delta \theta$$

$$\Delta \theta = \frac{9.9}{900 \times 1.25 \times 10^{-5}} = \frac{10000}{125}$$

گزینہ ۲ .

$$\Delta \theta = 10^\circ$$

- ۲۴

کار روی گاز مثبت + تراکم

انرژی درونی کاهش + $\Delta U < 0$

✓ $\Delta U = W$ + کار روی

همه کم + تراکم

گزینہ ۱

A: a , $V_A = 0$

B: $a + \frac{1}{r}$, $V_B = 0$
 انحراف

در هر دو: $t_A = 4^s$
 $t_B = 7^s$...

$\Delta \eta_A = \Delta \eta_B \Rightarrow$

$\frac{1}{r} a t_A^2 = \frac{1}{r} a t_B^2 \Rightarrow \frac{1}{r} a t^2 = \frac{1}{r} (a + \frac{1}{r}) (t-r)^2$

$11a = (\frac{a}{r} + \frac{1}{r}) \times 19 \Rightarrow 11a = 11a + 19$

$10a = 19 \rightarrow a = 1.9$

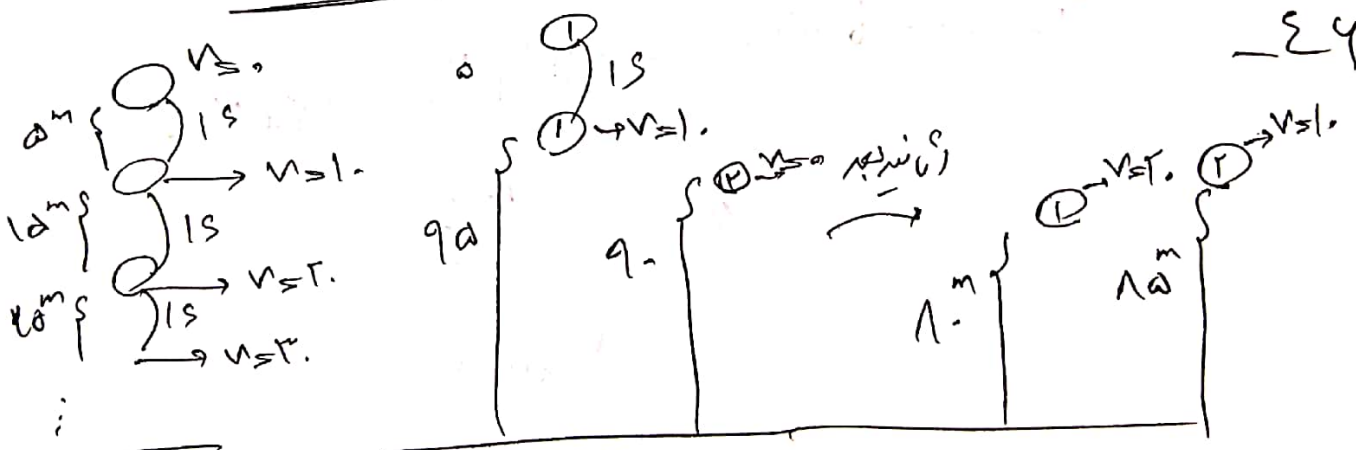
$a_B = 1.9$

$\Delta \eta_A = \frac{1}{r} \times 1.9 \times 10 = 9.0 \text{ m}$

$\Delta \eta_B = \frac{1}{r} \times 1.9 \times 72 = 21.1 \text{ m}$

11.1 m

در هر دو

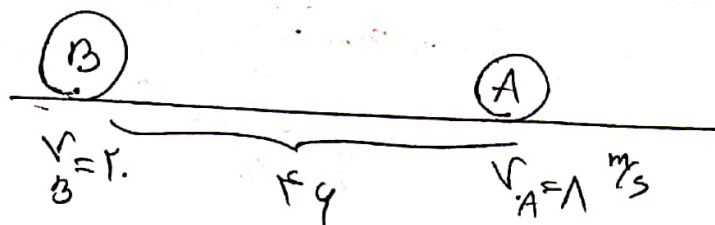


در هر دو
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در هر دو
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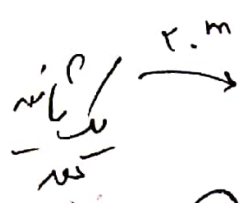
در هر دو
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 در هر دو

-ΣV



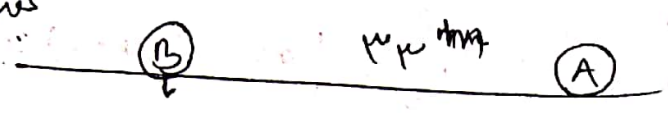
$$\Delta u = \frac{1}{r} a t^2 + v \cdot t$$

$$= \frac{1}{r} x - r t^2 + 1 x 1 = v^m$$



$$a = -r \frac{m}{s^2}$$

$$v^m$$



$$V_{B_0} = r_0 \frac{m}{s}$$

$$a = -r \frac{m}{s^2}$$

$$V_A = \cancel{1}$$

$$a_A = -r \frac{m}{s^2}$$

⊙ μ , $x_A = x_B \Rightarrow \frac{1}{r} x - r t^2 + 1 t + r \mu = \frac{1}{r} x - r t^2 + r_0 t$

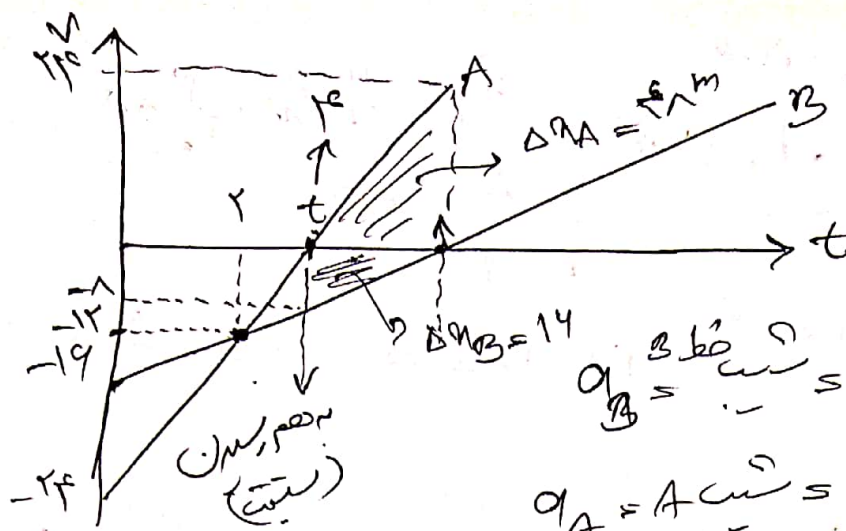
$$-t^2 + 1 t + r \mu = -r t^2 + r_0 t \Rightarrow t^2 - 1 t + r \mu = 0$$

$$(t-1)(t-r) = 0 \Rightarrow \begin{cases} t=1 \\ t=r \end{cases}$$

$$V_B = a t + v = -r \times r + r_0 = -1 + r_0 \Rightarrow$$

$$V_B = 1 \frac{m}{s}$$

Final



$$q_B = \frac{\Delta P_B}{\Delta t} = \frac{14}{7} = 2$$

$$q_A = \frac{\Delta P_A}{\Delta t} = \frac{18}{7} = 9 \Rightarrow \frac{18}{7} \Rightarrow t=7$$

جواب: این دو گاز در $t=7$ و $P=9$ متقاطع می‌شوند.

$$P_A + 14 = q_P$$

ماده افرا
کننده

$$T \propto r^3 - \text{عقار}$$

$$P = (3t - 9) \vec{i}$$

$$t_1 = 1 \text{ s}$$

$$t_2 = 3 \text{ s}$$

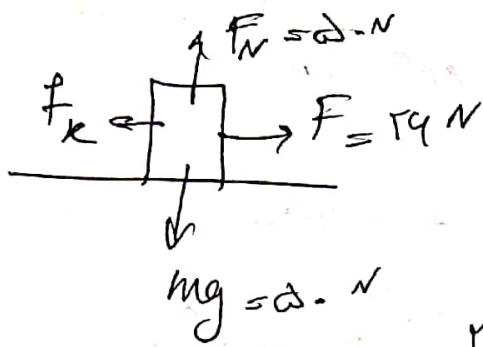
- ۵۰

$$F_t = \frac{\Delta P}{\Delta t}$$

$$\left. \begin{array}{l} P_1 = 3 \times 1 - 9 = -6 \\ P_2 = 3 \times 3 - 9 = 0 \end{array} \right\} \Delta P = 3 - (-6) = 9$$

$$F_t = \frac{9}{2} = 4.5 \vec{i}$$

ماده افرا

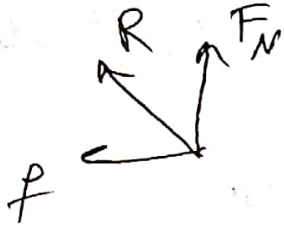


$$f_k = \mu_k F_N = \frac{1}{10} \times 20 = 2 \text{ N} \quad - \text{d1}$$

$$\sum F = ma$$

$$F - f_k = ma$$

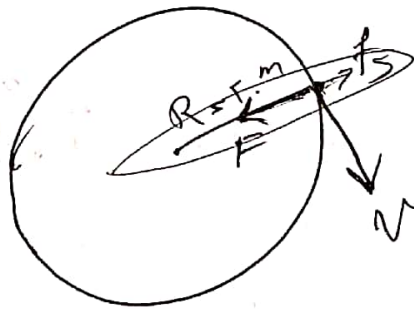
$$14 - 2 = 2a \Rightarrow a = \frac{12}{2} = 6 \text{ m/s}^2$$



$$R = \sqrt{F_N^2 + f^2} = \sqrt{20^2 + 2^2} = 20.1 \text{ N}$$

پہلے

$$v = 18 \frac{\text{km}}{\text{h}} = 5 \text{ m/s} \quad - \text{d1}$$



$$F = \frac{mv^2}{R}$$

$$F_{\text{spring}} = kx = 1000 \times 0.2 = 200 \text{ N}$$

پہلے



$$v = \lambda \cdot f$$

$$v = 35 \times 3.0 = 105 \text{ m/s}$$

$$L = 90 \text{ cm}$$

$$L = \frac{\lambda}{2}$$

$$90 = \frac{\lambda}{2}$$

$$\lambda = 180 \text{ cm}$$

پہلے

$$f = 3.0 \text{ Hz} \quad - \text{d1}$$

$$f_n = n f_1$$

$$3.0 = 3 f_1 \Rightarrow f_1 = 1.0 \text{ Hz}$$

$$\Delta \phi = \frac{E \hbar}{T} \Rightarrow T = \frac{E}{1.0} \text{ s}$$

- d4

$$\Delta t = \frac{1}{1.0} \text{ s} \rightarrow \frac{1}{T}$$

$$S = \frac{l}{\Delta t} \Rightarrow l/\omega = \frac{l}{1.2} \Rightarrow l = 1.2 \times 10^{-5} \text{ cm}$$

$$T \rightarrow \hbar A \text{ cm}, \quad \frac{1}{T} \rightarrow \hbar A \text{ cm}$$

$$\mu \text{ cm} = \hbar A \rightarrow A = 1.2 \times 10^{-5} \text{ cm}$$

نیم

$$\frac{\lambda}{T} = \omega \text{ cm} \quad - dV$$

$$\lambda = 1.2 \times 10^{-5} \text{ cm} = 1.2 \times 10^{-7} \text{ m}$$

$$N = \hbar \omega \text{ ms} = \frac{\lambda}{T} \Rightarrow T = \frac{1}{\hbar \omega} = \frac{1}{1.0} \text{ s} = 1 \text{ ms}$$

نیم

$$E_e = 1.1 \text{ eV} \quad \left. \begin{array}{l} \\ \end{array} \right\} \Delta E = 1.1 \text{ eV} \quad - dA$$

$$E_i = 13.4 \text{ eV}$$

$$n = 1, \quad n' = 1$$

نیم

$$W = 5 \text{ eV} \quad \lambda_r = \frac{1}{4} \lambda_1$$

- 99

$$K_2 = 9 K_1$$

$$K = \frac{hc}{\lambda} - W$$

$$\frac{hc \lambda_1^{-1} - 5}{\lambda_1} = 9 \times \left(\frac{hc \lambda_1^{-1} - 5}{\lambda_1} \right)$$

$$\frac{hc \lambda_1^{-1} - 5}{\lambda_1} - 9 = \frac{5 hc \lambda_1^{-1} - 45}{\lambda_1} - 9$$

$$\frac{hc \lambda_1^{-1} - 5}{\lambda_1} + 9 = \frac{5 hc \lambda_1^{-1} - 45}{\lambda_1} \Rightarrow 9 = \frac{4 hc \lambda_1^{-1} - 40}{\lambda_1}$$

$$9 \lambda_1 = 4 hc \lambda_1^{-1} - 40 \Rightarrow \lambda_1 = \frac{4 hc}{9 \lambda_1 + 40}$$

$$\lambda_1 = 190 \text{ nm} \quad \text{گزینه ۲}$$

۹۰ - گزینه ۴

$$\frac{v_r}{v_1} = \frac{r}{r_1}$$

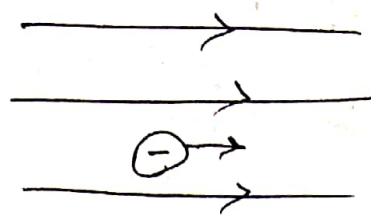
$$u = \frac{1}{r} c v_r$$

- 91

$$\frac{u_r}{u_1} = \left(\frac{v_r}{v_1} \right)^2 = \frac{9}{14}$$

$$\frac{u_r}{u_1} = \frac{9}{14}$$

۹۲-



بار مثبت: $\Delta U > 0$ ن
در جهت مس
حرکت کند.

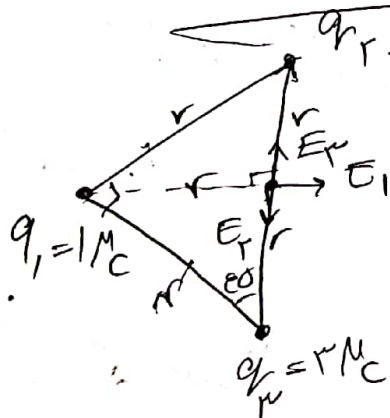
ΔV کاهشی می باشد

$$|\Delta V| = \frac{\Delta U}{q} = \frac{2 \times 10^{-13}}{2 \times 10^{-9}} = 10^{-5} \text{ ولت}$$

$$\Delta V = -10^{-5} \text{ ولت}$$

پیش می آید

۹۳-



$$q_2 = 2 \mu C \quad E_1 = \frac{k}{r^2}$$

$$E_r = \frac{9k}{r^2}$$

$$E_r = \frac{9k}{r^2}$$

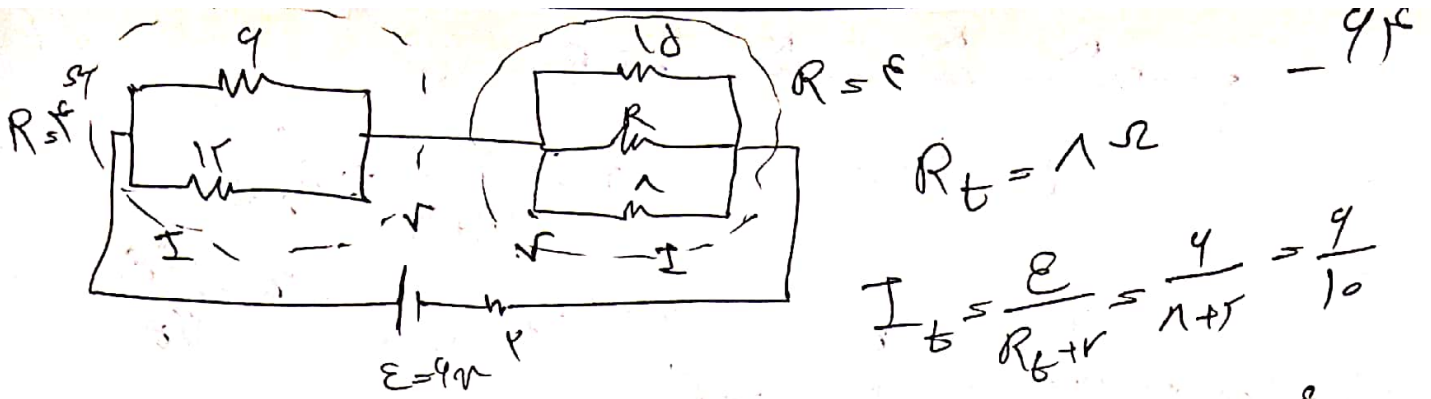
$$E = \sqrt{2} E_1$$

$$E = \sqrt{2} E_1$$

$$E_r - E_1 = \frac{k}{r^2} = E_1$$

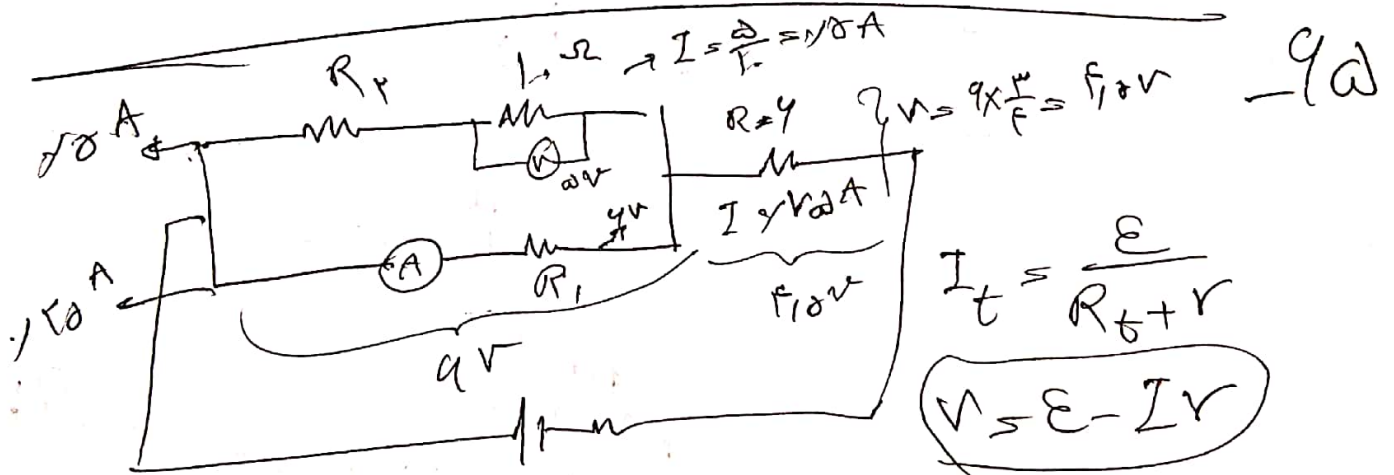
$$E' = \sqrt{E_1^2 + E_r^2} = \sqrt{\left(\frac{k}{r^2}\right)^2 + 9\left(\frac{k}{r^2}\right)^2} = \sqrt{10} \cdot \frac{k}{r^2}$$

$$\frac{E'}{E} = \frac{\sqrt{10}}{\sqrt{2}} = \sqrt{5} \quad \text{گزینه ۱}$$



$V = IR = \frac{9}{2} \times 1 = 4.5V$
 $R = 1\Omega$
 $I = \frac{V}{R} = \frac{4.5}{1} = 4.5A$
 $V_t = E - IR = 9 - \frac{9}{2} \times 1 = 4.5V$
 $V_t = 1V = 1A \rightarrow V = 1V$

پیدا

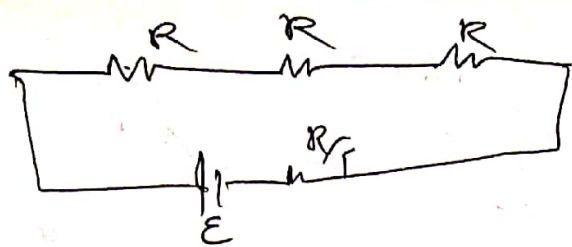


$V = 1V - \frac{9}{2} \times 1 = 1.5V$

$1.5 - \frac{9}{2} = 4V$

$R_1 = \frac{V_1}{I_1} = \frac{4}{1} = 4\Omega$

پیدا

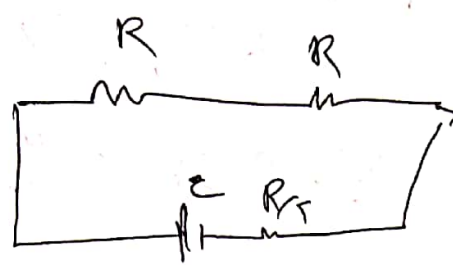


$$R_t = 3R$$

$$I = \frac{E}{3R + r} = \frac{E}{4R}$$

$$V = IR_t = \frac{E}{4R} \times 3R = \frac{3E}{4}$$

ملاحظة



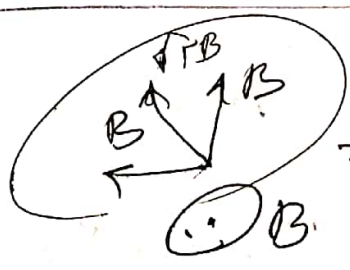
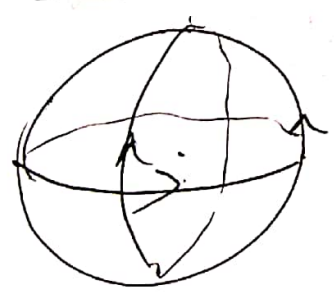
$$R_t = 2R$$

$$I' = \frac{E}{2R + r} = \frac{E}{3R}$$

$$V' = R'I' = \frac{E}{3R} \times 2R = \frac{2E}{3}$$

$$\frac{V'}{V} = \frac{\frac{2E}{3}}{\frac{3E}{4}} = \frac{V}{V'} = \frac{1}{1.5}$$

ملاحظة



$$B' = \sqrt{2} B \quad - 9V$$

$$B_t = \sqrt{2B^2 + B^2} = B\sqrt{2}$$

$$B = \frac{\mu_0 I}{2R} = \frac{4\pi \times 10^{-7} \times 2}{2 \times 10 \times 10^{-2}} = \frac{10^{-9}}{5} = 2 \times 10^{-9}$$

$$B_t = 2\sqrt{2} \times 10^{-9} T$$

$$l = 10, v \text{ cm} = 10 \times 10^{-2} \text{ m}$$

$$N = 1000$$

$$A = 1 \text{ cm}^2 = 1 \times 10^{-4} \text{ m}^2$$

$$L = \frac{\mu_0 N^2 A}{l} = \frac{4\pi \times 10^{-7} \times 1000^2 \times 1 \times 10^{-4}}{10 \times 10^{-2}} = 1.256 \times 10^{-3} \text{ H}$$

$$L = 7.1 \times 10^{-4} \text{ H} = 7.1 \text{ mH}$$

$$r = 1 \text{ cm} = 10^{-2} \text{ m}$$

$$V_0$$

$$A = \pi r^2 = 3.14 \times 10^{-4} \text{ m}^2$$

$$\theta = 90^\circ$$

$$\Delta t = 10^{-6} \text{ s}$$

$$B_1 = 1 \text{ T}, B_2 = 0$$

$$\mathcal{E} = A \cos \theta \frac{\Delta B}{\Delta t} = 3.14 \times 10^{-4} \times \frac{1}{10^{-6}} = 3.14 \times 10^{-1} \text{ V}$$

$$\mathcal{E} = 0.314 \text{ V}$$

۹۸-۹۹

۱- گشتی

$$A = 2 \text{ mm}^2$$

- ۱۲

$$\frac{mg}{A} = 10^6 \rightarrow \frac{m \times 10}{2 \times 10^{-6}} = 10^6 \rightarrow m = 2 \times 10^{-1} \text{ kg}$$

$$m = 200 \text{ g}$$

پیش

$$m = 2 \times 10^{-1} \text{ kg} \quad F = 9000 \text{ N} \quad - ۱۲$$

$$\theta = 30^\circ \quad f_k = 2000 \text{ N}$$

$$d = 2 \text{ m} \quad \Delta K = W_t = ?$$

$$W_t = W_F + W_f = F \cdot d \cos \theta - f_k d$$

$$W_t = 9000 \times 2 \times \cos 30^\circ - 2000 \times 2 = 10000 \text{ J}$$

پیش

$$m_1 = 10 \text{ g} \quad \theta_1 = 70^\circ \text{ C}$$

$$m_2 = 7 \text{ g} \quad \theta_2 = 10^\circ \text{ C}$$

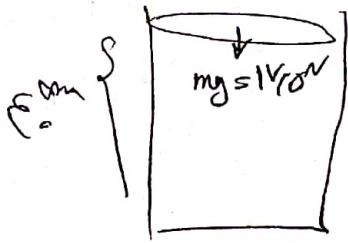
$$m_3 = 100 \text{ g} \quad \theta_3 = 32^\circ \text{ C}$$

$$\theta_e = \frac{m_1 c_1 \theta_1 + m_2 c_2 \theta_2 + m_3 c_3 \theta_3}{m_1 c_1 + m_2 c_2 + m_3 c_3}$$

$$\theta_e = \frac{10 \times 1 \times 70 + 7 \times 1 \times 10 + 100 \times 1 \times 32}{10 \times 1 + 7 \times 1 + 100 \times 1}$$

$$\theta_e = \frac{1.728 \times 10^3}{87 \times 10^3} = \theta_e = 32^\circ \text{ C}$$

نتیجه



$$\text{در حالت } T \Rightarrow P_1 V_1 = P_2 V_2$$

$$\left(P_{\text{هوا}} + \frac{m_1 g}{A} \right) \times V_1 = \left(P_{\text{هوا}} + \frac{m_2 g}{A} \right) \times V_2$$

$$\left(P_{\text{هوا}} + \frac{1/2 \rho \times \delta \times A \times l}{\delta \times A \times l} \right) \times \delta \times A \times l = \left(P_{\text{هوا}} + \frac{1/2 \rho \times \delta \times A \times l}{\delta \times A \times l} \right) \times \delta \times A \times l$$



$$P_{\text{هوا}} \times A \times l + V = P_{\text{هوا}} \times A \times l + \delta \times A \times l$$

$$\delta \times A \times l \times P_{\text{هوا}} = \delta \times A \times l \Rightarrow P_{\text{هوا}} = \frac{\delta \times \rho \times l}{\delta \times A \times l}$$

$$P_{\text{هوا}} = \frac{\delta \times \rho \times l}{\delta \times A \times l} = 9,1 \times 10^4 \text{ پاسکال}$$

برای مشاهده ویدیوی حل سوالات به اینستاگرام

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با ارزوی نویسی

دانش الماسیان

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