

(۴۶) گزینه (۱)

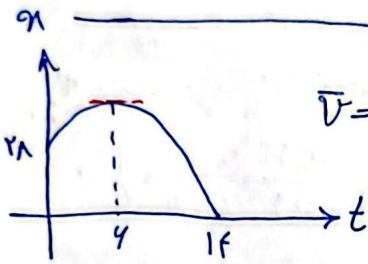
(۴۷) گزینه (۳)

(۴۸) گزینه (۱)

(۴۹) گزینه (۱)

(۵۰) گزینه (۲)

(۵۱) گزینه (۳)



(۵۲) گزینه (۳)

$$\bar{v} = \frac{\Delta x}{\Delta t}$$

$$\bar{v} = \frac{-20}{14} = -1.43 \text{ m/s}$$

$$E \propto \frac{1}{\lambda} \Rightarrow \frac{E_1}{E_2} = \frac{\lambda_2}{\lambda_1} = \frac{400}{400} = 1$$

$$a_A = k$$

(۵۳) گزینه (۲)

$$x_A = \frac{1}{2}kt^2 - 10t - 100 = \frac{1}{2}kt^2 - 10t - 100$$

$$x_B = \frac{1}{2}(a)t^2 + 10t + 100$$

$$\rightarrow -175 = \frac{1}{2}kt^2 - 10t - 100 \rightarrow t = 30 \text{ s} \rightarrow \text{خط صفر}$$

$$a_B = -1.4 \text{ m/s}^2$$

$$x_B = -\frac{1}{2}(900) + (10 \times 30) + 100 = 325 \text{ m}$$

$$325 + 175 = 500 \text{ m}$$

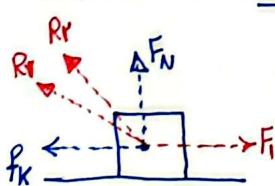
(۵۴) گزینه (۲)

$$F_N = 10 - 14 = 4 \text{ N} ; \text{ روت جسم ثابت است } \Rightarrow F_k = F_f = 4 \text{ N}$$

$$R = \sqrt{F_k^2 + F_N^2} = \sqrt{4^2 + 4^2} = 5.66 \text{ N}$$

$$\mu_k = \frac{3}{4}$$

$$F_{Ny} = 10 - 32 = 4 \text{ N} \rightarrow R_y = \sqrt{F_N^2 + F_{Ny}^2}$$



نیروی که سطح به جسم وارد می کند کاهش می یابد

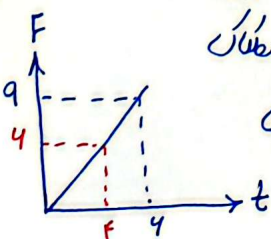
$$F_k = \frac{3}{4} \times 4 = 3 \text{ N}$$

$$\tan \theta_1 = \frac{4}{4} \rightarrow \theta_1 = 45^\circ$$

$$\tan \theta_2 = \frac{4}{3} \rightarrow \theta_2 = 53^\circ$$

(۵۵) گزینه (۱)

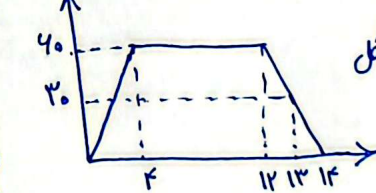
$$\mu_k = \mu_s = 0.12 \rightarrow f_{s \max} = \mu_s F_N = 0.12 \times 30 = 3.6 \text{ N}$$



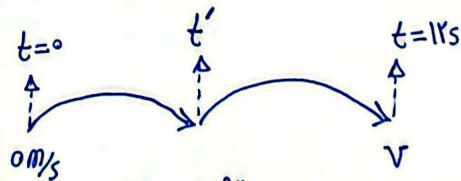
تا زمان در لحظه $t = 4 \text{ s}$ به بیشترین نیروی اصطکاک می رسد پس از آن جسم شروع به حرکت می کند و نیروی اصطکاک ثابت می ماند

$$\Delta x = \frac{(12+18)(1)}{2} = 15 \text{ km}$$

$$\Delta x_2 = \frac{(40+30)(1)}{40 \times 2} = 0.75 \text{ km}$$



$$\Delta x = 10 + 0.75 = 10.75 \text{ km}$$



$$\frac{114}{12} = \frac{0+v}{2} \rightarrow v = 34 \text{ m/s} \rightarrow a = 3 \text{ m/s}^2$$

$$\frac{\Delta x}{\Delta t} = \bar{v} \leftarrow \bar{v} = \frac{v_1 + v_2}{2}$$

$$\frac{34}{2} = \bar{v} \rightarrow \bar{v} = 17 \text{ m/s}$$

$$\bar{v} = 17 \text{ m/s} \leftarrow v_2 = 21 \text{ m/s} \quad v_1 = 13 \text{ m/s}$$

$$\left\{ \begin{aligned} W &\propto g \rightarrow \frac{W}{r^2} = \frac{m}{r^2} \\ g &\propto \frac{m}{r^2} \end{aligned} \right. \Rightarrow \frac{W}{r^2} = \frac{m}{r^2} \times \left(\frac{r}{r} \right)^2 = 1 \times \left(\frac{1}{r} \right)^2 = \frac{1}{r^2}$$

(۵۷) گزنیہ رکا

$40 \xrightarrow{\quad} 30 \xrightarrow{\quad} 0 \xrightarrow{\quad} -30$
 (1) (2) (1) (2)
 سانس سانس
 (A) (B) (A)


 $k = 2 \text{ N/cm}$
 m

(28) $\omega = \sqrt{\frac{k}{m}} = \sqrt{\frac{2}{1}} = \sqrt{2} \text{ rad/s}$

(۴۴) گزینہ (۲)

$$\frac{q_2}{q_1} < 0$$

طابق صفت نیروها ← 9_{170} و 9_{340} ←

$$\frac{F_w}{F_1} = \frac{\gamma}{\lambda} = \left| \frac{q_w}{q_1} \right| \times \left(\frac{\nu}{\nu} \right)^{\nu} \rightarrow \frac{q_w}{q_1} = \frac{-\nu}{\nu}$$
$$\frac{K}{E} = \left(\frac{V}{V_{max}} \right)^2 \Rightarrow \frac{K}{0.14} = \left(\frac{0.1}{0.1\sqrt{2}} \right)^2$$

$$\left[\begin{array}{l} \rightarrow \frac{1}{4} K A^2 = \frac{1}{4} \times 200 \times 4 \times 10^{-6} = 0.14 J \\ \rightarrow V_{max} = AW = 0.1\sqrt{2} \end{array} \right]$$

$$\Rightarrow K = 0.14 J \rightarrow U = E - K = 0.14 J$$

(۶۵) گزنیہ (۴)

$m = \rho v$, $R \propto \frac{\rho v L^2}{m}$

$$\Rightarrow \left(\frac{A}{B}\right) \propto \frac{1}{m} \rightarrow m \propto \frac{1}{\left(\frac{A}{B}\right)}$$

(۵۹) گزنیہ (۴) $v_{max} = A\omega$

$$V_{\max} = r_1 r = V \times 10^{-3} \omega \rightarrow \omega = \frac{r r_0}{V} = \frac{r \pi}{T}$$
$$\rightarrow T = \frac{Y \times V}{F \times \dots} \times \frac{Y \times}{V} = \boxed{0.15}$$

(۶۶) گزنفہ (۱۳)

40 گزینہ (۳)

(۱۱) تکلیف

$$R_{eq} = 9 = 4 + R_{11} \rightarrow R_{11} = 5 = \frac{4R_r}{R_r + 4} \rightarrow R_r = 4\Omega$$
$$I = \frac{Y_0}{q+1} = \overline{YA} \rightarrow I_T = 1A \rightarrow P_T = q(1)T = \overline{4W}$$

YCW: $R_{eq} = \frac{1K \times 4}{1K} = \boxed{4\Omega}$ $I = \frac{V_o}{R+1} = \boxed{A}$



$$\rightarrow R_T = 4 \quad R_T = 4$$

$$\rightarrow I_X = I \rightarrow X = \frac{P}{\mu}$$

$$I_A \quad I_X \quad R_1 = 4$$

$$v = \sqrt{\frac{FL}{m}}, \quad \lambda = \frac{v}{f}$$

← ثابت (از منبع منبع)

(۹) گزینہ (۲)
$$p = \frac{nhf}{t} = \frac{nhc}{\lambda t}$$

$$\Rightarrow n = \frac{443 \times 10^{-3} \times 481 \times 10^{-3} \times 4}{443 \times 10^{-3} \times 481 \times 10^{-3}}$$
$$\Rightarrow n = 12 \times 10^{19} = 12 \times 10^{20}$$

$$P_{\text{سی}} = \frac{12154}{1314} - \frac{18}{1314} = -0.14 \text{ cmHg} = -4 \text{ mmHg}$$

(۷۳) گزینه (۲)

$$V_1 = 5 \text{ m/s}$$

$$W_T = \frac{1}{2} m (V_2^2 - V_1^2)$$

$$W_T = \frac{1}{2} \times 20 \times (425 - 25) = 4000 \text{ J} = 4 \text{ kJ}$$

$$V_2 = 25 \text{ m/s}$$

(۷۴) گزینه (۴)

$$V_2 = 12 \text{ m/s}$$

$$400 - 144 = 20h \rightarrow h = 12.8 \text{ m}$$

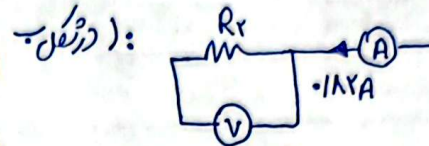
$$V_1 = 20 \text{ m/s}$$

(۷۵) گزینه (۱)

$$Q = mLv$$

$$P = \frac{Q}{t} \Rightarrow t = \frac{4 \times 225 \times 10^3}{2 \times 10^3} = 450 \text{ s} = 7.5 \text{ min}$$

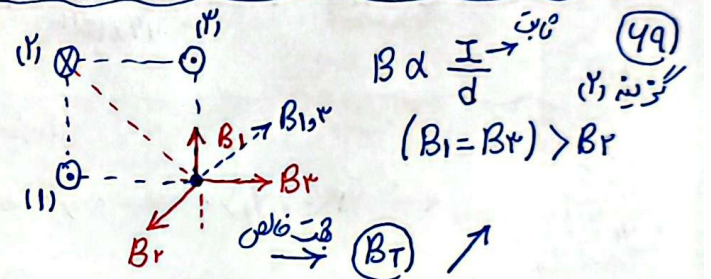
$$R = \frac{V}{I} = \frac{V_2}{I_2} = 45 \Omega \rightarrow R_1 = 40 \Omega$$



$$I = \frac{V}{R} = \frac{V_2}{R_2} = 0.141 \text{ A}$$

جریان عبوری از R_2 نیز برابر ۰.۱۴۱ خواهد بود

(۷۸) گزینه (۱)



(۷۹) گزینه (۳)

$$I = \frac{E}{R} = \frac{N \Delta \Phi}{\Delta t \times R}$$

$$\Rightarrow I = \frac{2 \times \frac{1}{2} \times \frac{1}{2}}{2 \times 2} = \frac{1}{4} = 0.25$$

(۷۱) گزینه (۴)

$$V = \frac{4}{3} \pi (R^3 - r^3) = \frac{4}{3} \pi (10^3 - 1^3) = 21 \pi \text{ cm}^3$$

$$m = \rho V \Rightarrow 4 \times 10^3 = \frac{4}{3} \pi \times 10^3 \times \frac{21 \pi}{3}$$

$$\Rightarrow \alpha^3 = 10^{-2} \rightarrow \alpha = 10^{-2} \text{ m} = 1 \text{ cm}$$

(۷۲) گزینه (۱)

$$P - P_0 = ?$$

$$12 \times 15 = 1314 h_1 \rightarrow h_1 = \frac{18}{1314}$$

$$15 \times 8 = 1314 h_2 \rightarrow h_2 = \frac{12154}{1314}$$