

نوین کنکور

کنکور

امتحان نهایی

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

novinkonkor.com

پایخ سر درین سبب نند، برین نوب دم

۱۴.۴ سده

لینک خبری
۰۹۳۶۹۰۳۶۹۲

۲ (۴۶)

۳ (۴۷)

$$E = nhf = nh \frac{c}{\lambda}$$

$$\frac{E_{\lambda = 400 \text{ nm}}}{E_{\lambda = 800 \text{ nm}}} = \frac{400}{800} = 0.5$$

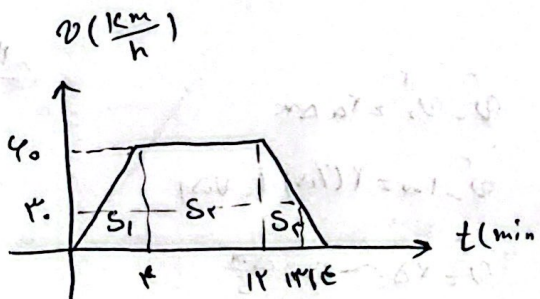
۱ (۴۸)

$$C = \frac{KE_0 A}{d}$$

$$C = \frac{q}{V}$$

کازن از با تدریس
مدارس

۲ (۴۹)



$$\frac{km}{h} \times \min = km$$

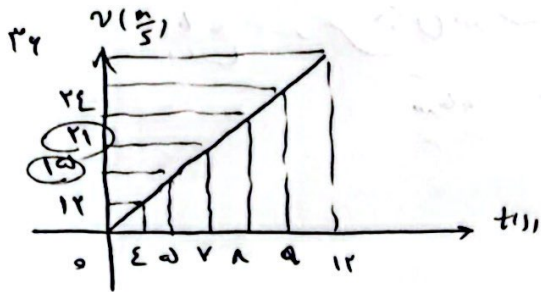
۲ (۵۰)

$$S_1 = \frac{1}{2} \times 30 \times 12 = 180$$

$$\sum S = \frac{420}{40} = 10.5$$

$$S_2 = 30 \times 12 = 360$$

$$S_3 = \frac{30 + 40}{2} \times 12 = 420$$



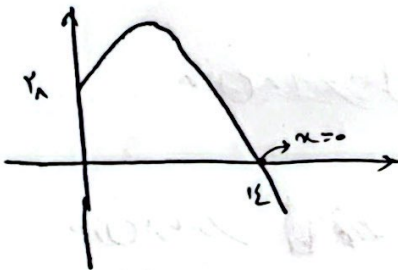
$$S = \Delta x = l = 112$$

$$\frac{1}{2} \times 12 \times 24 = 144$$

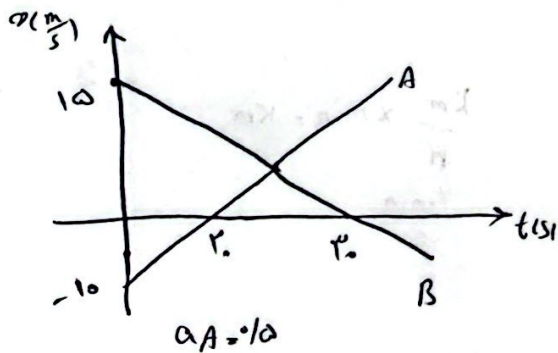
$$\begin{cases} v = 2 \frac{m}{s} \\ v_0 = 0 \end{cases} \rightarrow a = 2 \frac{m}{s^2}$$

$$S = 144 = \frac{12 + 24}{2} \times 12$$

$$\frac{t}{\Delta s \rightarrow v_s}$$



$$\bar{v} = \frac{\Delta x}{\Delta t} = \frac{0 - 12}{12} = -1 \frac{m}{s}$$



$$v - v_0 = a \Delta t$$

$$v - 10 = 2(10) (-v_0)$$

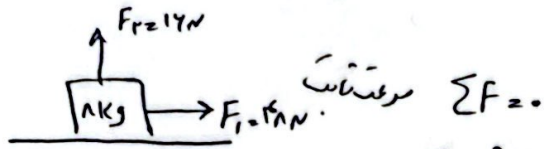
$$v = 20 \sim v = \frac{20}{5}$$

$$a_A = 4 \frac{m}{s^2} = \frac{\Delta v}{\Delta t} = \frac{20 - (-10)}{5}$$

$$\Delta t = 5$$

$$S_B = \Delta x_B = \frac{1}{2} \times 10 \times 20 = 100 \text{ m} \rightarrow x_B = 20 + 100 = 120 \text{ m}$$

$$20 - (-10) = 30 \text{ m}$$

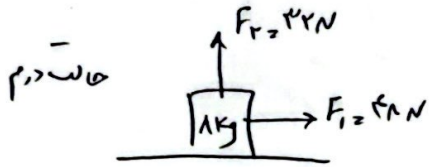


۴ (د)

$$F_N = 4 N$$

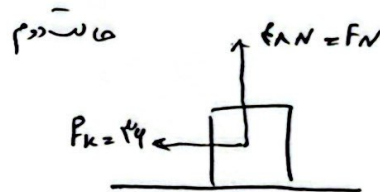
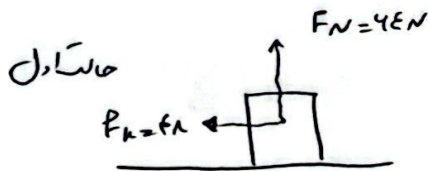
$$F - F_k = 0 \rightarrow F_k = 8 N \rightarrow \mu_k F_N = 8$$

$$\mu_k (10 - 12) = 8 \rightarrow \mu_k = \frac{8}{-2} = -4$$

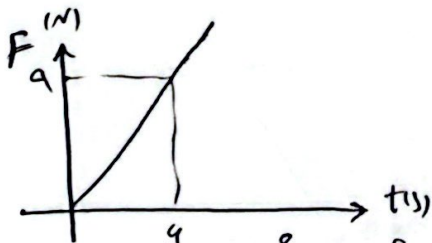


$$\begin{cases} F_N = 10 - 12 = -2 N \rightarrow F_i > F_k \\ F_k = \mu_k F_N = \frac{8}{-2} \times (-2) = 8 N \end{cases}$$

$$R = \sqrt{F_N^2 + F_k^2}$$



$$\frac{F_N}{F_k} = \text{نسبت}$$



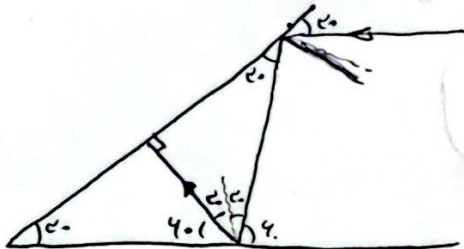
$$f = \mu F_N = 12 \times (mg) = 12 \times 0.5 = 6 N \quad 1 (د)$$

تا زمانه که F به 4 نیوتون نرسد
 $F < f$ جسم شروع به حرکت نمی کند و f ثابت 6 نیوتون

$$\frac{W}{W} = \frac{mg}{mg} = \frac{g}{g}$$

۲ (۵۶)

$$g = \frac{G m_e}{r^2} \sim \frac{g}{g} = \frac{m}{m} \times \left(\frac{r}{r} \right)^2 = \frac{r}{1} \times \left(\frac{1}{r} \right)^2 = \frac{1}{r}$$



عدد برای این حالت

عدد برای این حالت

۱۴ (۵۷)

$$m = 2 \text{ kg}$$

$$E = U + K$$

$$K = 200 \frac{\text{N}}{\text{m}}$$

$$U = E - K$$

$$A = 1 \times 10^{-2}$$

$$E = \frac{1}{2} m \omega^2 A^2 = \frac{1}{2} K A^2 = \frac{1}{2} \times 200 \times 4 \times 10^{-4} = 0.04 \text{ J}$$

$$v = 1.5 \frac{\text{m}}{\text{s}}$$

$$K = \frac{1}{2} m v^2 = \frac{1}{2} \times 2 \times 1.5^2 = 0.0225 \text{ J}$$

$$\rightarrow U = 0.04 - 0.0225 = 0.0175 \text{ J}$$

۱ (۵۸)

$$A = 1 \times 10^{-2}$$

$$v_{\text{max}} = 1.5$$

$$v_{\text{max}} = A \omega \rightarrow \omega = \frac{v_{\text{max}}}{A} = \frac{1.5}{1 \times 10^{-2}} = 150 \text{ rad/s}$$

$$\frac{1.5}{1 \times 10^{-2}} = \frac{1.5}{1 \times 10^{-2}} \rightarrow T = 1 \times 10^{-2} = 0.01 \text{ s}$$

۴ (۵۹)

$$v = \sqrt{\frac{F}{\mu}}$$

$$\lambda = \frac{v}{f} = \frac{v}{\frac{1}{T}} = vT$$

۲ (۶۰)

$$E = nhf = nh \frac{c}{\lambda} = p \lambda \rightarrow n = \frac{p \lambda}{h c} = \frac{44 \times 10^{-3} \times 40 \times 10^{-9}}{6.6 \times 10^{-34} \times 3 \times 10^8} = 1.2 \times 10^9$$

$$n = \frac{44 \times 10^{-3} \times 40 \times 10^{-9}}{6.6 \times 10^{-34} \times 3 \times 10^8} = 1.2 \times 10^9$$

۲ (۶۱)

$$\frac{1}{\lambda} = R_H \left(\frac{1}{n_1^2} - \frac{1}{n_2^2} \right)$$

1 (72)

بفرض $\left\{ \begin{array}{l} n_1 = 2 \\ n_2 = \infty \end{array} \right.$ نيلسون عدد 2

$$\frac{1}{\lambda} = R_H \left(\frac{1}{2^2} - \frac{1}{\infty} \right)$$

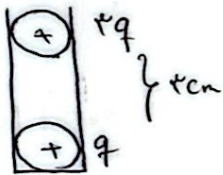
$$\frac{1}{\lambda} = R_H \left(\frac{11}{4 \times 10^7} \right) \rightarrow \lambda = \frac{4 \times 10^7}{11 R_H}$$

نيلسون عدد 2 $\left\{ \begin{array}{l} n_1 = 2 \\ n_2 = \infty \end{array} \right.$

$$\frac{1}{\lambda} = R_H \left(\frac{1}{2^2} - \frac{1}{\infty} \right)$$

$$\lambda = \frac{4 \times 10^7}{11 R_H}$$

$$\frac{\lambda_{max}}{\lambda_{min}} = \frac{4}{11}$$



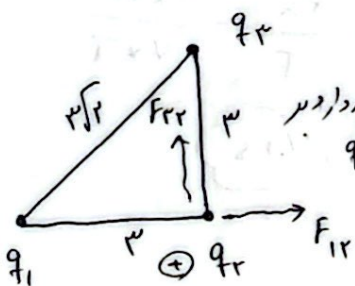
$$F = mg \quad , \quad m = \rho \times \mu \times r = 10 \times 1. \times 10^{-3} \text{ kg} = 10 \times 10^{-3} \text{ kg} \quad (72)$$

$$\frac{q \times 1. \times 10^{-9}}{4 \times 10^{-2}} = 10 \times 10^{-3} \rightarrow 10 \times 10^{-3} = \frac{q \times 10^{-9}}{4 \times 10^{-2}}$$

$$q = 10 \times 10^{-3} \times 4 \times 10^{-2}$$

$$q = 4 \times 10^{-5} = ne$$

$$n = \frac{4 \times 10^{-5}}{1.6 \times 10^{-19}} = 2.5 \times 10^{14}$$



$$F_T = 1 \times 10^{-3} \text{ N} \quad (73)$$

$$\frac{q_1}{q_2} < 1 \rightarrow q_2 < q_1 \rightarrow F_T \text{ is positive}$$

$$F_{12} = \frac{q_1 \times q_2}{a} = \frac{10 \times 10^{-9} \times 10^{-9}}{1} = 10 \times 10^{-18} \text{ N}$$

$$F_{13} = \frac{q_1 \times q_3}{a} = \frac{10 \times 10^{-9} \times 10^{-9}}{1} = 10 \times 10^{-18} \text{ N}$$

$$\frac{q_2}{q_1} = -\frac{1}{2}$$

7

$$\frac{R_A}{R_B} = 1$$

$$\frac{I_A}{I_B} = 1$$

$$\frac{P_A}{P_B} = 2$$

$$\frac{P_A}{P_B} = 2$$

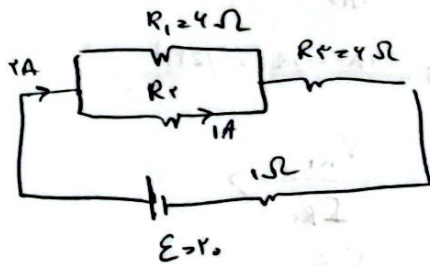
$$\frac{R_A}{R_B} = \frac{P_A}{P_B} \times \frac{I_A}{I_B} \times \frac{A_B}{A_A}$$

$$1 = 2 \times 1 \times \frac{A_B}{A_A}$$

$$\frac{A_A}{A_B} = 2$$

$$\frac{m_A}{m_B} = \frac{P_A}{P_B} \times \frac{V_A}{V_B} = \frac{P_A}{P_B} \times \frac{A_A}{A_B} \times \frac{I_A}{I_B} = 2$$

2 (76)

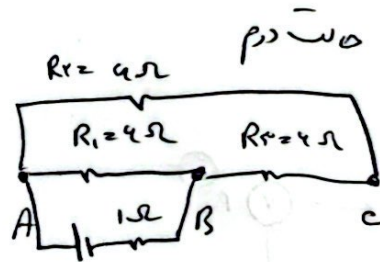
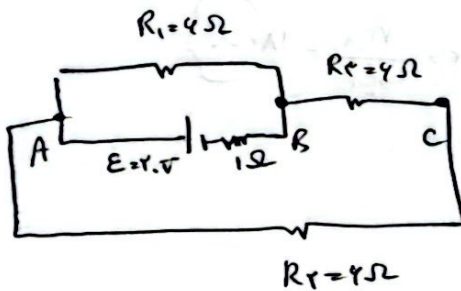


$$R_{eq} = 4\Omega \rightarrow R_T = 4\Omega$$

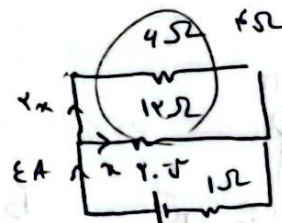
$$I = \frac{2}{4+1} = 2A$$

$$P_{R_2} = R_2 I^2 = 4 \times (1)^2 = 4W$$

2 (77)



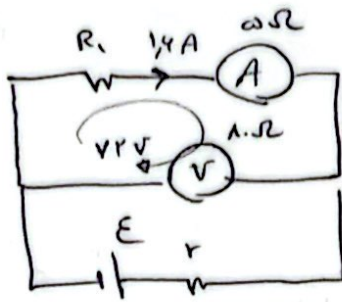
$$P_{R_2} = E A \rightarrow P_{R_2} = \frac{E^2}{R_2}$$



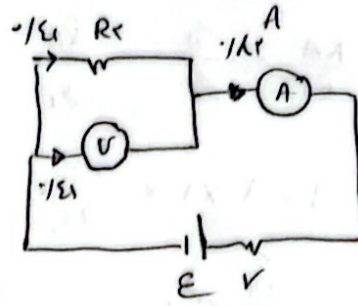
$$I = \frac{2}{2+1} = \frac{2}{3}A$$

$$P_{R_2} = R_2 \left(\frac{E}{R_2} \right)^2 = 4 \times \frac{14}{9} = \frac{56}{9} W$$

$$\frac{56}{9} - 4 = \frac{16}{9} W$$



(الف)



(ب)

~~.....~~

$$V_2 = (1.4 \times 2) + V_{R_1}$$

$$V_{R_1} = 1.2 - 2.8 = -1.6$$

$$R_1 = \frac{1.6}{1.4} = 1.14 \Omega$$

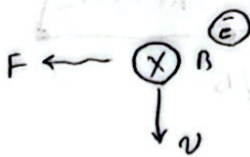
$$I_V = \frac{V_{R_1}}{R_1} = \frac{1.2}{1.14}$$

$$I_{R_2} = 1.4 - I_V = 1.4 - \frac{1.2}{1.14} = 1.4 - 1.05 = 0.35 A$$

$$R_2 = \frac{V_{R_2}}{I_{R_2}} = \frac{1.2}{0.35}$$

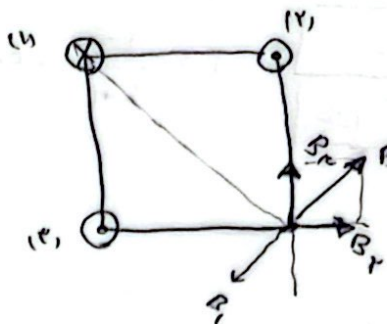
$$R_2 = \frac{V_V}{I_{R_2}}$$

$$R_2 = \frac{1.2}{0.35} = 3.43 \Omega$$



فرض حقیقت

(7a)



$$B = \frac{\mu_0 I}{2a}$$

چون فاصلہ کم (1) آفہ 0

$$B_1 < B' \rightarrow B_T$$

$$\mathcal{E} = -\frac{N}{R} \frac{\Delta \Phi}{\Delta t} = -\frac{N}{R} \frac{\Delta B A}{\Delta t} = \frac{200}{20} \frac{0.01 \times 0.01}{2 \times 10^{-3}} = 1.25 V$$

$$I = \frac{\mathcal{E}}{R} = \frac{1.25}{10} = 0.125 A$$

1

$$m = \rho V$$

f (v1)

$$\rho V = \frac{f}{r} \times (10a^r - a^r) = \frac{f}{r} \times r \times va^r \text{ cm}^r$$

$$m = f \cdot gr$$

$$\rho = \frac{r_0}{\sqrt{r}}$$

$$m = \rho V \Rightarrow r_0 = \frac{r_0}{\sqrt{r}} \times \frac{f}{r} \times r \times va^r$$

$a^r = 1 \rightarrow a = 1$

$$P_A = P_B$$

1 (v2)

$$P_0 + \rho_1 g h_1 = P_0 + \rho_2 g h_2$$

$$P_0 + \rho_2 g h_2 - P_0 = \rho_2 g h_2 - \rho_1 g h_1 = 1000 \times 10 \times 1 \times 10^{-2} - 1200 \times 10 \times 10 \times 10^{-2}$$

$$10000 \times 10^{-2} - 120000 \times 10^{-2} = -2000 \text{ Pa}$$

$$h_{em} + u_j = \frac{\Delta \epsilon \epsilon}{1240} = -1/2 \text{ cm} u_j = -4 \text{ mm} - 4g$$

$$W_f = \frac{1}{r} m (v_r^r - v_i^r) = \frac{1}{r} \times r_0 (v_0^r - v_i^r) = 10 (420 - 20) = 400 \text{ J}$$

$= 4 \text{ kJ}$

2 (v3)

$$v_r^r - v_i^r = r g h \rightarrow (v_0^r - v_i^r) = r_0 (h)$$

3 (v4)

$$1000 - 1200 = r_0 h \Rightarrow 200 = r_0 h$$

$$h = 17.1 \text{ m}$$

$$Q = P t$$

1 (v5)

$$m L v = P t \rightarrow t = \frac{E \times 220 \times 10}{2 \times 10^3} = \frac{44000}{2000} = 22 \text{ s} = 22 \text{ min}$$

مستند

04379-37592

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