

$$A = r^2 \quad \rightarrow \quad \frac{r^2}{r} + \frac{0}{-1} + \frac{0}{+1} + \frac{r^2 - r^2}{r - r} \quad (14) \sim (15)$$

$$N = (r^2 - r) - (r - r) = r^2 - r$$

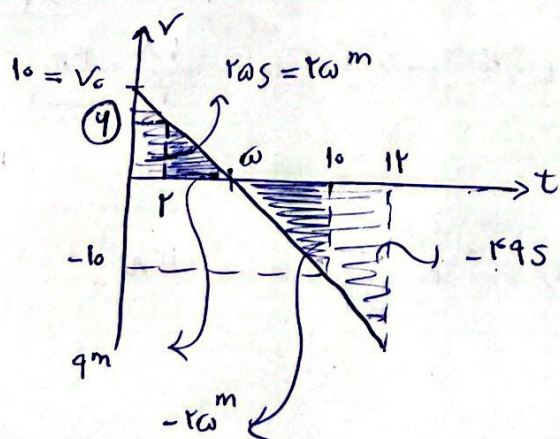
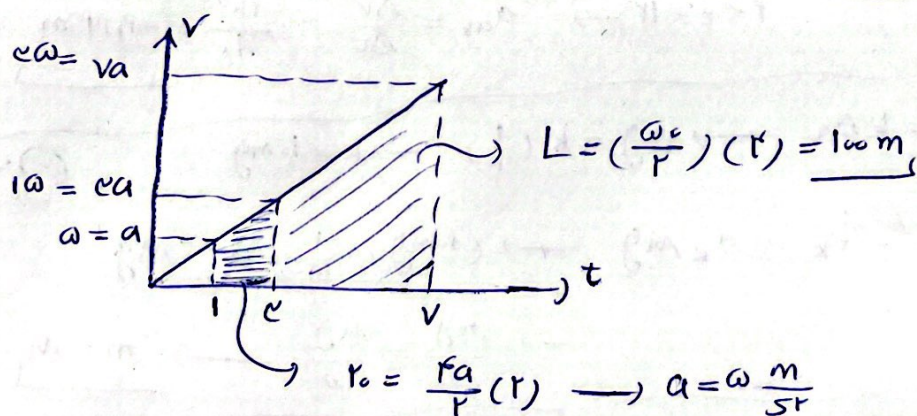
نیز درون و درون هسته برابرند پس اختلاف آن‌ها صفر است.

$$W_E = r_0 \times 10^{-4} \text{ J} \quad ; \quad \frac{V_B - V_A}{\Delta V} = \frac{\Delta U}{q} = -\frac{W_E}{q} \quad (16) \sim (17)$$

$$V_A = 4V$$

$$\downarrow \quad V_B - 4 = -\frac{r_0 \times 10^{-4}}{-q \times 10^{-2}} = \frac{r}{\omega} (10) = 4$$

$$\downarrow \quad V_B = 1.7$$

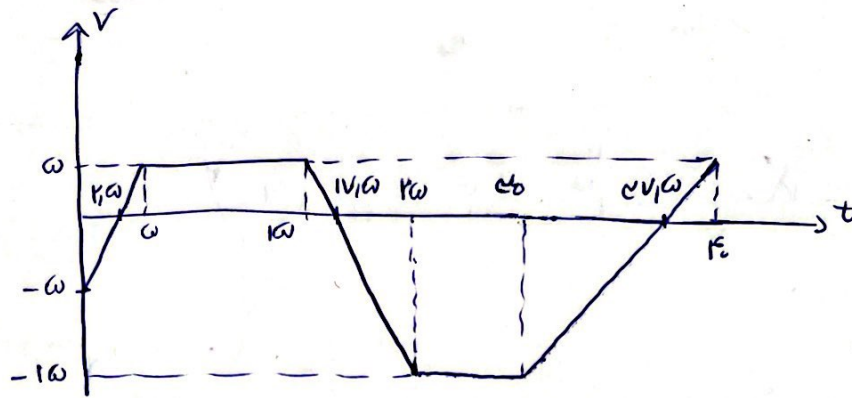


$$k = \frac{v}{\omega} \rightarrow k^r = \frac{r q}{r \omega}$$

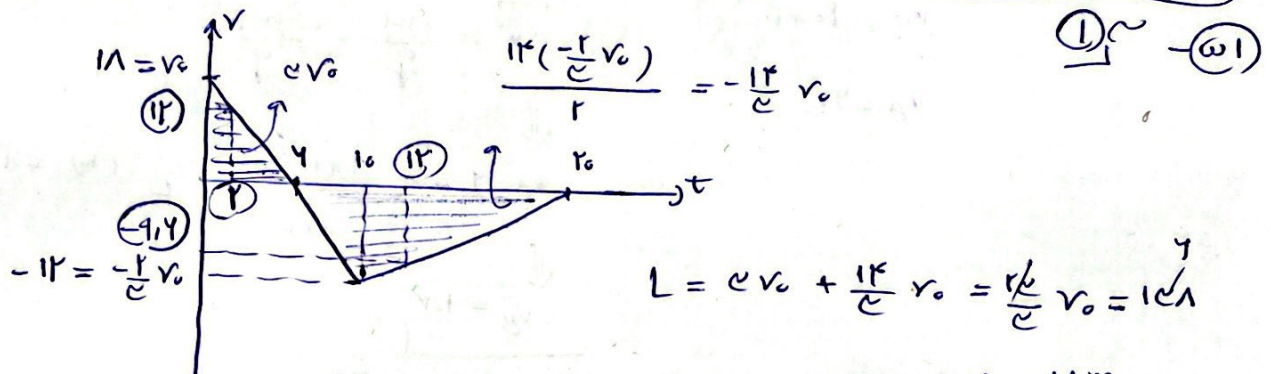
$$\Delta n = -r f s = -r f \rightarrow s = 1$$

$$r < t < v_0 \rightarrow S_{av} = \frac{v_0}{\lambda} = \frac{1V}{f s} \frac{m}{s}$$

د



$$L = 4r\omega + 4r\omega + 1r\omega + 4r\omega = 24r\omega m$$

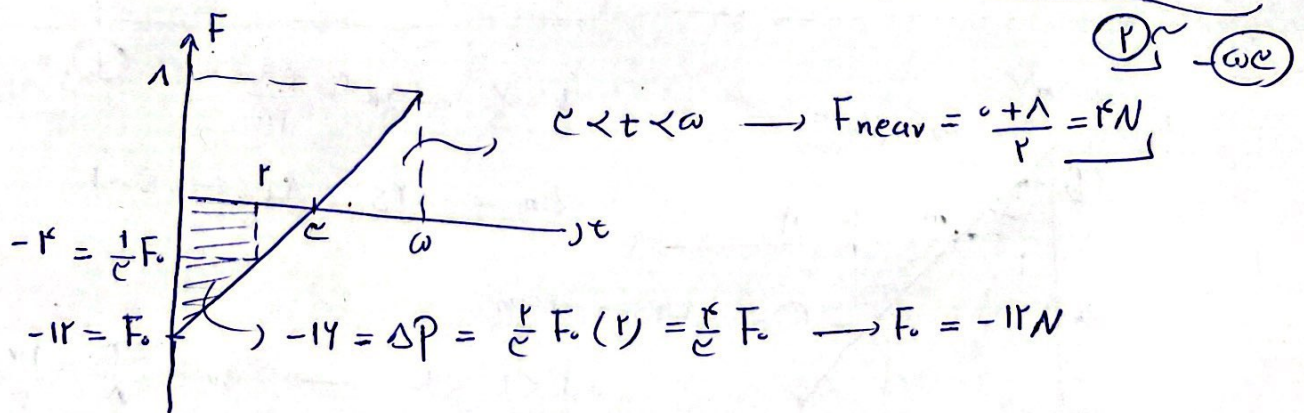


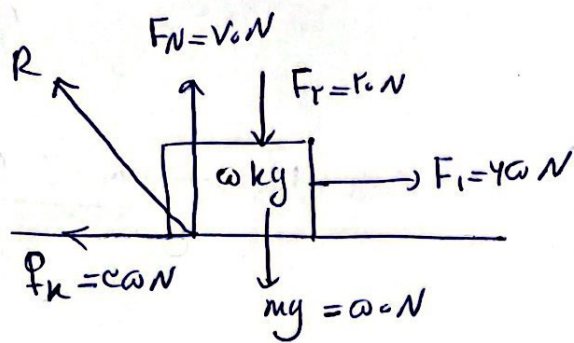
$$r < t < 11 \rightarrow a_{av} = \frac{\Delta v}{\Delta t} = \frac{-r/4}{10} = -r/40 \frac{m}{s^2}$$

$$mg = k \Delta n \rightarrow mg = k \left(\frac{1}{\omega} \right) \rightarrow k = 1.0 mg$$

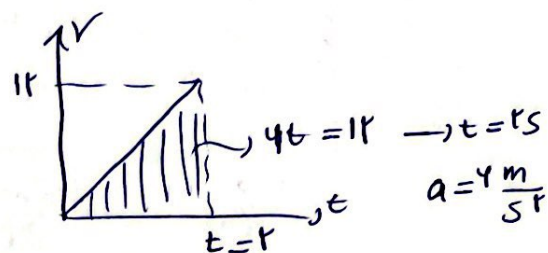
$$k \Delta n' = \mu_k = \mu_k Mg \rightarrow (1.0 mg) \left(\frac{1}{\omega} \right) = \frac{1}{\omega} Mg$$

$$\rightarrow \frac{mg}{\omega} = \frac{Mg}{\omega} \rightarrow m = M$$





$\textcircled{F} \sim \textcircled{\omega^k}$



$$F_1 - F_k = ma \rightarrow 4\omega - c\omega = c\omega \rightarrow F_k = c\omega N$$

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

$$T_1 = \frac{c\gamma}{\rho_0} = \frac{\gamma}{\omega} s \quad T = r\gamma \sqrt{\frac{L}{g}}, \quad \frac{\gamma}{\omega} = r\gamma \sqrt{\frac{L}{\pi r}}$$

$\textcircled{1} \rightarrow \frac{11}{100} m = L_1 = 11 cm$

$$\frac{T_r}{T_1} = \sqrt{\frac{L_r}{L_1}} = \sqrt{\frac{4r}{11}} = \frac{1}{9}$$

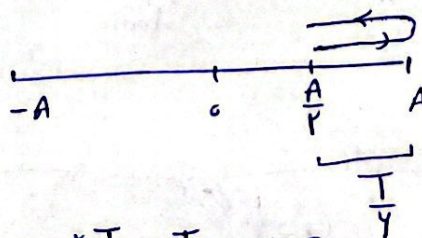
$L_r = 4r cm$

$$\rightarrow T_r = \frac{1}{9} \left(\frac{\gamma}{\omega} \right) = \frac{1}{\omega} s \rightarrow n_r = \frac{r_0}{\frac{1}{\omega}} = r\omega$$

$$v = \frac{r}{D} \sqrt{\frac{F}{\rho \pi}} \rightarrow v = \frac{r}{r \times 10^{-2}} \sqrt{\frac{r \times 10^{-2}}{(1100)(\pi)}} = 100 \frac{m}{s}$$

$$\lambda = \frac{v}{f} = 100 m = 100 cm \rightarrow \frac{1}{T} = r\omega cm$$

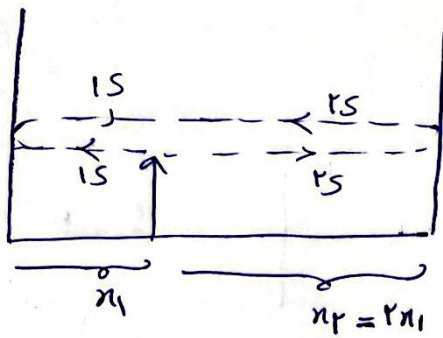
$$T = \frac{r\pi}{\frac{r\pi}{c}} = \frac{c}{r} s$$



$$\Delta t = \frac{rT}{Y} = \frac{T}{c} = 100 s$$

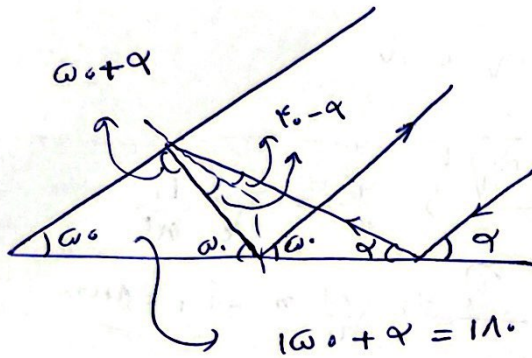
$\textcircled{C}$

(P) - (ωλ)



$$c n_1 = 1.0 r_0 \rightarrow \lambda_1 = c f_0 m$$

(C) - (ωq)



$$1 \omega_0 + \omega = 1 \lambda_0 \rightarrow \alpha = c_0 \theta$$

(D) - (γ0)

$$\left. \begin{array}{l} n_u = \omega \\ n_l = r \end{array} \right\} E_{min} = -\gamma \omega r r + \gamma \lambda \omega = \gamma c_0 \gamma e r \quad (41)$$

$$\left. \begin{array}{l} n_u = r \\ n_l = 1 \end{array} \right\} E_{max} = -c_1 r + 1 c_1 \gamma = 1.01 e r$$

$$h f_{min} = \gamma c_0 \gamma = \frac{h c}{\lambda_{max}} \rightarrow \lambda_{max} = r_0 \omega r / r \lambda n m$$

$$h f_{max} = 1.01 e r = \frac{h c}{\lambda_{min}} \rightarrow \lambda_{min} = 1 r_1 \omega \gamma n m$$

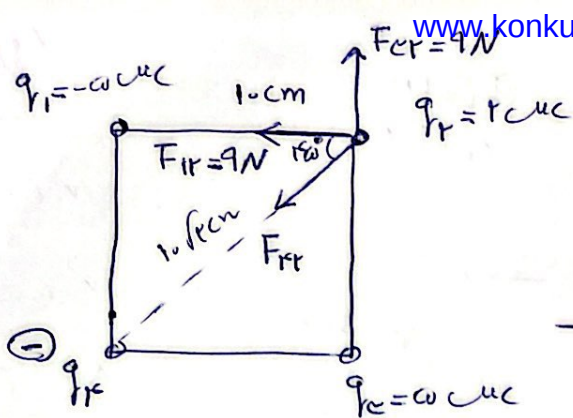
$$\lambda_{max} - \lambda_{min} \approx c_9 c_1 n m$$

$$\frac{\phi_r}{\phi_i} = \frac{c}{r} \quad u = \frac{1}{r} \frac{\phi_r}{\phi_i} \quad \frac{u_r}{u_i} = \left(\frac{\phi_r}{\phi_i} \right)^r \rightarrow \frac{u_i + r \omega}{u_i} = \frac{q}{r} \quad (42)$$

$$u_r = u_i + r \omega$$

$$\rightarrow u_i = r_0 c u_j \rightarrow r_0 = \frac{1}{r} \frac{\phi_i}{r_0}$$

$$(P) \rightarrow \phi_1 = r_0 c u c$$



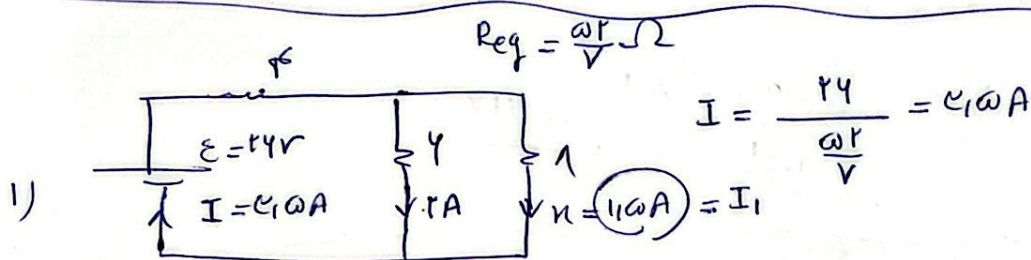
(F) (4C)

$$F_{rr} \sin 45^\circ = F_{cr}$$

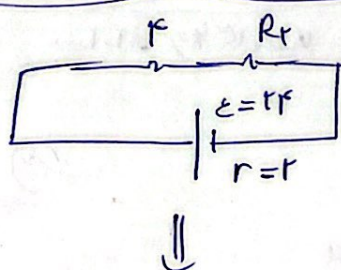
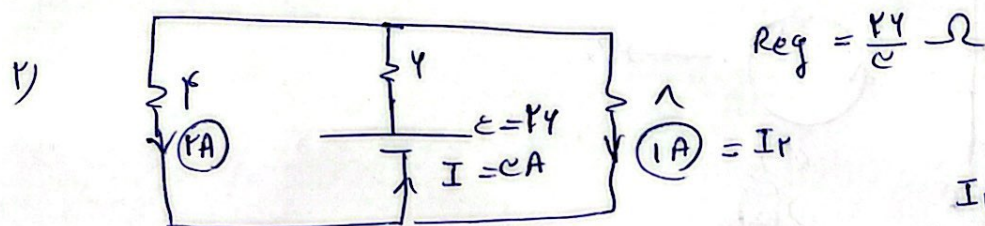
$$\rightarrow F_{rr} \frac{\sqrt{r}}{r} = 9 \rightarrow F_{rr} = 9\sqrt{2} \text{ N}$$

$$9\sqrt{r} = \frac{q_1 |q_2| (r)}{r_{00}}$$

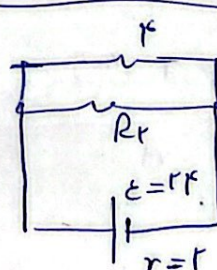
$$\rightarrow q_2 = -1.0\sqrt{2} \mu\text{C}$$



(r) (4r)



$$P_1 = \frac{(r+R_r) (2r)^2}{(r+R_r)^2}$$



$$P_2 = \frac{r R_r}{r+R_r} \times \frac{(2r)^2}{\left(\frac{r R_r}{r+R_r} + r\right)^2}$$

$$P_1 = \frac{4r}{100} P_2 \rightarrow R_r = 4 \Omega$$

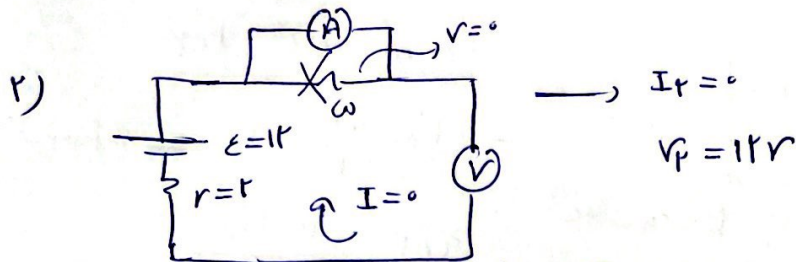
الجب: با بر سر کنش هاهم من درج $R_r = 4 \Omega$ رسد

©

$$1) I = \frac{12}{4} = 3A \rightarrow I_1 = 3A$$

$$V_1 = 10V$$

(1) (44)



$$I_2 = 0$$

$$V_2 = 12V$$

✓ (الف)

✓ (ب)

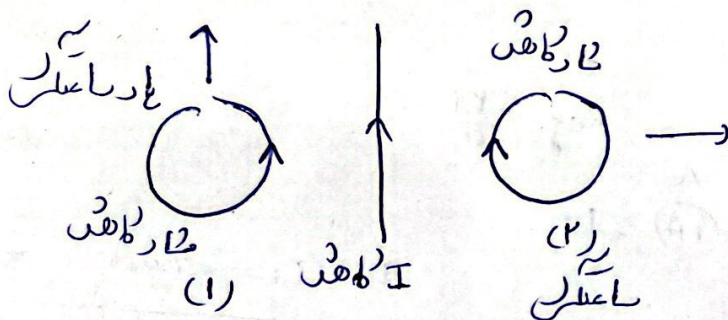
X (ج)

↖ r دوسرے ω اہیں، 10 = پڑھتے ہیں

$$|\vec{E}| = N \left| \frac{\Delta B}{\Delta t} \right| A \cos \theta$$

(F) (45)

$$\rightarrow |\vec{E}| = \frac{(10) (2 \times 10^{-2}) (\omega \times 10^{-2}) (1)}{10^{-1}} = 0.12$$



(2) (46)

$$P = \frac{(mg)_{\text{up}} + (mg)_{\text{down}}}{A} + P_0 \rightarrow v \omega (10^4) = 102000$$

(C) (47)

$$\rightarrow P = 1010 + 102000 = 103010 Pa$$

$$W_{mg} + W_f = \frac{1}{2} m (v_f^2 - v_i^2)$$

(F) (48)

$$\rightarrow + (2) (10) + W_f = \frac{1}{2} (1) (20) \rightarrow W_f = -4J$$

(49)

$$m_1 C_1 (\theta_e - \theta_1) + m r C_r (\theta_e - \theta_r) + \frac{C_e}{r} (\theta_e - \theta_e) = 0 \quad (VI)$$

$$\rightarrow \frac{\omega r}{100} (100) (\omega) + \frac{1}{10} (100) (-\omega) + C_e (-\omega) = 0$$

$$\rightarrow C_e = 100 \frac{J}{K}$$

$$K = \frac{1}{2} m v^2 = (10^3) (40 \times 10^3)^2 = 40 \times 10^4 J \quad (VII)$$

$$v = 1000 \frac{m}{s}$$

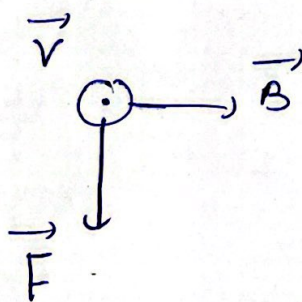
$$= 40 \times 10^4 MJ$$

$$T = \omega \theta \quad \frac{F = \frac{q}{\omega} \theta + cr}{\omega} \rightarrow \frac{q}{\omega} \theta + cr = \omega \theta \quad (VIII)$$

$$\rightarrow \frac{14}{\omega} \theta = cr \rightarrow \theta = 10^\circ C$$

$$T = 1000 K$$

$$q = 14 \times 10^{-9} \times 10^{-4} C = 14 \times 10^{-13} C = 1.4 \times 10^{-12} C \quad (IX)$$



$$F = |q| v B \sin \theta$$

$$\rightarrow 10^{-12} = (1.4 \times 10^{-12}) (\omega \times 10^6) (B) (1)$$

$$\rightarrow B = 100 T$$

(V)