



JEE (Main)

PAPER-1 (B.E./B. TECH.)

2022

COMPUTER BASED TEST (CBT) Memory Based Questions & Solutions

Date: 27 July, 2022 (SHIFT-1) | TIME : (9.00 a.m. to 12.00 p.m)

Duration: 3 Hours | Max. Marks: 300

SUBJECT: PHYSICS

Resonance Eduventures Ltd.

Reg. Office & Corp. Office : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph. No.: +91-744-2777777, 2777700 | FAX No.: +91-022-39167222

To Know more : sms RESO at 56677 | Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

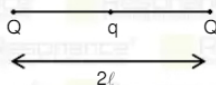
Toll Free : 1800 258 5555 | [facebook.com/ResonanceIndia](https://www.facebook.com/ResonanceIndia) | twitter.com/ResonanceIndia | www.youtube.com/resonanceindia | blog.resonance.ac.in

This solution was download from Resonance JEE (MAIN) 2022 Solution portal

Resonance Eduventures Ltd. | JEE MAIN-2022 | DATE : 27-07-2022 (SHIFT-1) | PAPER-1 | MEMORY BASED | PHYSICS

PART : PHYSICS

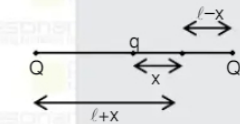
1. A charge q is slightly displaced along the line joining both the fixed charges Q . Find time period of oscillations of charge q .



(1) $\sqrt{\frac{4\pi^3 \epsilon_0 \ell^3 m}{Qq}}$ (2) $\sqrt{\frac{8\pi^3 \epsilon_0 \ell^3 m}{Qq}}$ (3) $\sqrt{\frac{2\pi^3 \epsilon_0 \ell^3 m}{Qq}}$ (4) $\sqrt{\frac{\pi^2 \epsilon_0 \ell^3 m}{Qq}}$

Ans. (1)

Sol. Net force on q on displaced position



$$F = \frac{kQq}{(\ell+x)^2} - \frac{kQq}{(\ell-x)^2}$$

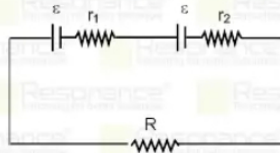
$$= -kQq \left[\frac{\ell^2 + x^2 + 2\ell x - \ell^2 - x^2 + 2\ell x}{(\ell^2 - x^2)^2} \right]$$

$$= -kQq \left[\frac{4\ell x}{(\ell^2 - x^2)^2} \right] = \frac{Qq}{4\pi\epsilon_0 \ell^4} \{x \ll \ell\}$$

$$\Rightarrow F = -\left(\frac{Qq}{\pi\epsilon_0 \ell^3} \right) x \quad \text{So, } T = 2\pi\sqrt{\frac{m}{k}}$$

$$T = 2\pi\sqrt{\frac{m\pi\epsilon_0 \ell^3}{Qq}} \quad T = \sqrt{\frac{4\pi^3 \epsilon_0 \ell^3 m}{Qq}}$$

2. If potential difference across battery of internal resistance r_1 is zero then find value of R



(1) $R = r_1 - r_2$ (2) $R = r_1 + r_2$ (3) $R = \frac{r_1 r_2}{r_1 + r_2}$ (4) $R = \frac{r_1^2}{r_1 + r_2}$

Ans. (1)

Resonance Eduventures Ltd.

Reg. Office & Corp. Office : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph. No.: +91-744-2777777, 2777700 | FAX No.: +91-022-39167222

To Know more : sms RESO at 56677 | Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029
Toll Free : 1800 258 5555 | 7340010333 | facebook.com/resonanceedu | twitter.com/resonanceedu | www.youtube.com/resonance | blog.resonance.ac.in

This solution was download from Resonance JEE (MAIN) 2022 Solution portal

PAGE # 1

Resonance® Educating for better tomorrow | JEE MAIN-2022 | DATE : 27-07-2022 (SHIFT-1) | PAPER-1 | MEMORY BASED | PHYSICS

Sol. Let current in circuit is i

so according to question $\epsilon - 2r_1 = 0$

$$\Rightarrow i = \frac{\epsilon}{r_1}$$

Now for circuit current is $i = \frac{2\epsilon}{R + r_1 + r_2}$

$$\frac{\epsilon}{r_1} = \frac{2\epsilon}{R + r_1 + r_2} \Rightarrow 2r_1 = R + r_1 + r_2$$

$$\Rightarrow R = 2r_1 - r_1 - r_2$$

$$\Rightarrow R = r_1 - r_2$$

3. Two bodies of masses $4m$ and $3m$ are moving around a planet in radius $3r$ and $4r$ find ratio of their total mechanical energy.

(1) $\frac{9}{16}$ (2) $\frac{16}{9}$ (3) $\frac{16}{4}$ (4) $\frac{12}{9}$

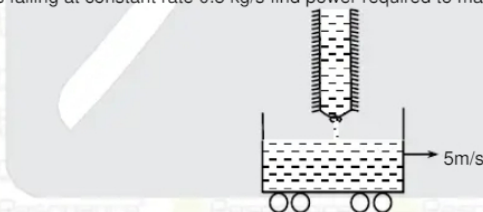
Ans. (2)

Sol. $E_1 = -\frac{GM}{6 \times r} \frac{4m}{2}$

$$E_2 = -\frac{GM}{8 \times r} \frac{3m}{2}$$

$$E_1 : E_2 = \frac{4/3}{16} : \frac{3/8}{16}$$

4. Sand is falling at constant rate 0.5 kg/s find power required to maintain uniform velocity 5 m/s :



- (1) 12.5 (2) 14.5 (3) 16.75 (4) 18.25

Ans. (1)

Sol. $F_{\text{ext}} + U_{\text{rel}} \frac{dv}{dt} = m \frac{dv}{dt}$
 $F_{\text{ext}} + (-5) \times 0.5 = m \times 0$
 $F_{\text{ext}} = 2.5$
 $P = F_{\text{ext}} v = 2.5 \times 5$
 $P = 12.5$

Resonance Eduventures Ltd.

Reg. Office & Corp. Office : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph. No.: +91-744-2777777, 2777700 | FAX No.: +91-022-39167222

To know more : sms RESO at 56677 | Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

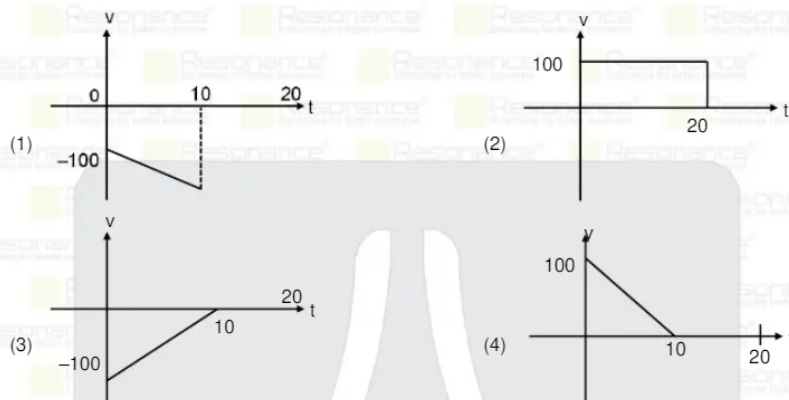
Toll Free : 1800 258 5555 | 7340010333 | facebook.com/ResonanceEdu | twitter.com/ResonanceEdu | www.youtube.com/resonance | blog.resonance.ac.in

This solution was download from Resonance JEE (MAIN) 2022 Solution portal

PAGE # 2

Resonance Eduventures Ltd. | JEE MAIN-2022 | DATE : 27-07-2022 (SHIFT-1) | PAPER-1 | MEMORY BASED | PHYSICS

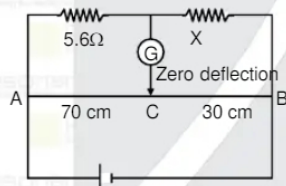
5. A bullet is projected vertically downwards with initial velocity 100 m/s from a tower. It reaches on ground after 10 sec. bullet sticks to the ground after collision. Choose correct option for graph between velocity and time for first 20 sec. of motion of bullet.



Ans. (1)

Sol. $Av = u + at \Rightarrow V = -100 - 10t$
 which is a straight line with negative slope and negative intercept.

- 6.



Cross section area of wire AB is uniform. Zero deflection in galvanometer is found at point C. Find X :

- (1) 8.6 Ω (2) 6.4 Ω (3) 4.2 Ω (4) 2.4 Ω

Ans. (4)

Sol. $\frac{X}{5.6} = \frac{30}{70}$
 $\Rightarrow X = \frac{3}{7} \times 5.6$
 $X = 2.4 \Omega$

7. Two magnetic bars oscillate in a uniform magnetic field with time periods 3 sec. & 4 sec. If moment of inertia of both the bars are 2 kg m^2 & 3 kg m^2 respectively then find ratio of their magnetic moments.

- (1) $\frac{32}{27}$ (2) $\frac{16}{25}$ (3) $\frac{9}{16}$ (4) $\frac{64}{27}$

Ans. (1)

Resonance Eduventures Ltd.

Reg. Office & Corp. Office : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph. No.: +91-744-2777777, 2777700 | FAX No.: +91-022-39167222

To Know more : sms RESO at 56677 | Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555 | 7340010333 | facebook.com/ResonanceEdu | twitter.com/ResonanceEdu | www.youtube.com/resonance | blog.resonance.ac.in

This solution was download from Resonance JEE (MAIN) 2022 Solution portal

PAGE # 3

Resonance® Educating for better tomorrow | JEE MAIN-2022 | DATE : 27-07-2022 (SHIFT-1) | PAPER-1 | MEMORY BASED | PHYSICS

Sol. $T = 2\pi\sqrt{\frac{I}{MB}}$

$$\Rightarrow T^2 = 4\pi^2 \frac{I}{MB}$$

$$\Rightarrow M = \frac{4\pi^2 I}{T^2 B}$$

$$M \propto \frac{I}{T^2}$$

So $\frac{M_1}{M_2} = \frac{I_1}{I_2} \times \frac{T_2^2}{T_1^2} = \frac{2}{3} \times \frac{4^2}{3^2} = \frac{32}{27}$

8. Intensities of two waves are $I_1 = I$ & $I_2 = 4I$
In case A both the wave superimposed with phase difference $\pi/2$ & in case B both the waves superimposed with phase diff. $\pi/3$, find ratio of resultant intensities in both the cases.

- (1) $5/6$ (2) $5/7$ (3) $4/5$ (4) $3/5$

Ans. (2)

Sol. $I_A = I_1 + I_2 + 2\sqrt{I_1 I_2} \cos \phi$

$$I_A = I + 4I + 0 = 5I$$

$$I_B = I + 4I + 2\sqrt{I \cdot 4I} \cos \frac{\pi}{3}$$

$$\Rightarrow I_B = 5I + 4I \times \frac{1}{2} = 5I + 2I = 7I$$

So, $\frac{I_A}{I_B} = \frac{5I}{7I} = \frac{5}{7}$

9. In a conductor current flowing is 1 A and its length is 1 m, resistivity is $1.7 \times 10^{-8} \Omega \text{ m}$ and area cross section is 2 mm^2 . Find force on one electron

- (1) $136 \times 10^{-23} \text{ N}$ (2) $126 \times 10^{-23} \text{ N}$ (3) $116 \times 10^{-23} \text{ N}$ (4) $106 \times 10^{-23} \text{ N}$

Ans. (1)

Sol. $F = \frac{eV}{\ell}$

$$= e \frac{R}{\ell}$$

$$= e \frac{\rho \ell}{A}$$

$$F = \frac{eI\rho}{A}$$

$$= \frac{1.6 \times 10^{-19} \times 1 \times 1.7 \times 10^{-8}}{2 \times 10^{-6}}$$

$$= \frac{1.6 \times 1.7}{2} \times 10^{-21} \text{ N}$$

$$= 1.36 \times 10^{-21} \text{ N}$$

$$= 136 \times 10^{-23} \text{ N}$$

Resonance Eduventures Ltd.

Reg. Office & Corp. Office : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph. No.: +91-744-2777777, 2777700 | FAX No.: +91-022-39167222

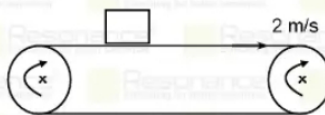
To Know more : sms RESO at 56677 | Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555 | 7340010333 | facebook.com/ResonanceEdu | twitter.com/ResonanceEdu | www.youtube.com/resonance | blog.resonance.ac.in

This solution was download from Resonance JEE (MAIN) 2022 Solution portal

PAGE # 4

10. A conveyor belt is moving with constant velocity 2 m/s. The coefficient of friction between a block and belt is $\mu = 1/4$. If the block is released on it, find distance travelled till it stops on belt



- (1) 0.2 m (2) 0.4 m (3) 0.6 m (4) 0.8 m

Ans. (4)
Sol.

$\rightarrow a = \mu g$

$v^2 - u^2 = 2as$
 $2^2 - 0 = 2 \times \frac{1}{4} \times 10 \times s$
 $s = 16/20 = 0.8 \text{ m}$

11. In 30 hr, activity of sample reduces to $1/16$ of its initial value find the half-life of the substance

- (1) 5.5 hr (2) 6.75 hr (3) 7.5 hr (4) 8.5 hr

Ans. (3)

Sol. $A = A_0 e^{-\frac{\ln 2}{T_1} t}$
 $\frac{1}{16} = e^{-\frac{\ln 2}{T_1} t}$
 $\ln 16 = \frac{\ln 2}{T_1} t$
 $4 = \frac{1}{T_1/2} \times 30$
 $T_1/2 = 7.5 \text{ hr}$

12. A conductor of resistance 3Ω given D.C. current of 4A another conductor of resistance 2Ω is given an A.C. current of peak value 4A find the ratio of heat produced in two conductors in same time.

- (1) 1 : 2 (2) 3 : 1 (3) 2 : 3 (4) 1 : 1

Ans. (2)

Sol. $H_1 = i_1^2 R_1 t$
 $H_2 = i_{\text{rms}}^2 \times R_2 t$
 $\frac{H_1}{H_2} = \frac{4^2 \times 3}{\left(\frac{4}{\sqrt{2}}\right)^2 \times 2} = \frac{3}{1}$

Resonance Eduventures Ltd.

Reg. Office & Corp. Office : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph. No.: +91-744-2777777, 2777700 | FAX No.: +91-022-39167222

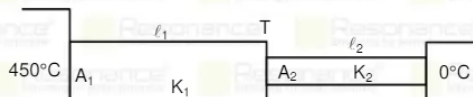
To Know more : sms RESO at 56677 | Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555 | 7340010333 | facebook.com/ResonanceEdu | twitter.com/ResonanceEdu | www.youtube.com/resonance | blog.resonance.ac.in

This solution was download from Resonance JEE (MAIN) 2022 Solution portal

PAGE # 5

13. Two rods are connected in series between 450° and 0°C . Their thermal conductivities, area of cross-sections and lengths are in ratio $1/2$, $1/9$ and $1/2$. Find the temperature of common junction



- (1) 15°C (2) 30°C (3) 45°C (4) 60°C

Ans. (3)

Sol. $\frac{450 - T}{K_1 A_1} = \frac{T - 0}{K_2 A_2}$
 $\frac{\ell_1}{K_1 A_1} = \frac{\ell_2}{K_2 A_2}$
 $450 - T = 9T$; $T = 45^\circ\text{C}$

14. Resolving power of a microscope in air is P . If it is submerged in a oil of refractive index 2 then its resolving power becomes nP . Find value of n .

(1) 4 (2) 2 (3) $1/4$ (4) $1/2$

Ans. (1)

Sol. $R.P. \propto \frac{\mu}{\lambda}$
 $\frac{(R.P.)_{\text{air}}}{(R.P.)_{\text{oil}}} = \frac{\mu_{\text{air}}}{\mu_{\text{oil}}} \times \frac{\lambda_{\text{oil}}}{\lambda_{\text{air}}}$
but $\frac{\lambda_{\text{oil}}}{\lambda_{\text{air}}} = \frac{\mu_{\text{air}}}{\mu_{\text{oil}}} = \frac{1}{2}$
so $\frac{(R.P.)_{\text{air}}}{(R.P.)_{\text{oil}}} = \frac{1}{2} \times \frac{1}{2} = \frac{1}{4} \Rightarrow (R.P.)_{\text{oil}} = 4P$ Ans.

15. A particle is projected vertically upwards from ground another particle is projected from ground with different velocity at angle θ with horizontal. Find ratio of maximum height attained by both the particles. It is given that time of flights of both the particles is same :

(1) 2 (2) 1 (3) $1/2$ (4) $1/4$

Ans. (2)

Sol. For first particles $H_1 = u^2/2g$
For second particle $H_2 = \frac{v^2 \sin^2 \theta}{2g}$
So, $H_1/H_2 = \frac{u^2}{v^2 \sin^2 \theta}$
Now, $T_1 = T_2 \Rightarrow \frac{2u}{g} = \frac{2v \sin \theta}{g}$
 $\Rightarrow u = v \sin \theta \Rightarrow u/v = \sin \theta$
So, $H_1/H_2 = 1$

Resonance Eduventures Ltd.

Reg. Office & Corp. Office : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph. No.: +91-744-2777777, 2777700 | FAX No.: +91-022-39167222

To Know more : sms RESO at 56677 | Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555 | 7340010333 | Facebook.com/ResonanceEdu | Twitter.com/ResonanceEdu | www.youtube.com/resonance | blog.resonance.ac.in

This solution was download from Resonance JEE (MAIN) 2022 Solution portal

PAGE # 6



| JEE MAIN-2022 | DATE : 27-07-2022 (SHIFT-1) | PAPER-1 | MEMORY BASED | PHYSICS

16. The main scale of a vernier callipers reads 10 mm in 10 divisions. 10 divisions of Vernier scale coincide with 9 divisions of the main scale. When the two jaws of the callipers touch each other, the fifth division of the vernier coincides with some main scale divisions and the zero of the vernier is to the right of zero of main scale. When a sphere is tightly placed between the two jaws, the zero of vernier scale lies slightly behind 3.2 cm and the fourth vernier division coincides with a main scale division. The diameter of the sphere is :

(1) 2.07 cm (2) 3.09 cm (3) 4.05 cm (4) 5.03 cm

Ans. (2)

Sol. Zero error = 0.5 mm = 0.05 cm.
Observed reading of sphere diameter = 3.1 cm + (4) (0.01 cm) = 3.14 cm
Actual thickness of sphere = (3.14) - (0.05) = 3.09 cm

17. Two identical containers are filled with same gas at same temperature. Ratio of number of molecules is 1 : 4.

(a) Ratio of their r.m.s. speed is 1 : 1 (b) Ratio of their pressure is 1 : 4
(c) Ratio of their pressure is 1 : 4 (d) Ratio of their r.m.s. speed is 1 : 4
(1) (a) & (b) are correct (2) (a) & (c) are correct
(3) (a) correct & (b) incorrect (4) (a) incorrect & (b) correct

Ans. (1)

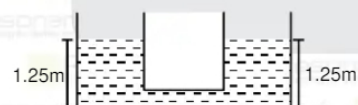
Sol. $V_{\text{rms}} = \sqrt{\frac{3RT}{M}}$, So V_{rms} are same
 $PV = NKT$

$$\frac{r_1}{P_2} = \frac{r_1}{N_2} = \frac{1}{4}$$

18. Two cylindrical vessels have same area and are filled upto 1m and 1.5m height. If the two vessels are connected using a thin pipe of negligible volume. Find the total work done by gravity till the two levels equalizes, if area of each is 1m^2 :
- (1) 635J (2) 625J (3) 626J (4) 627J

Ans. (2)

Sol.



$$\begin{aligned} m_1 &= A\rho h_1 & m_2 &= A\rho h_2 \\ u_i &= m_1 g \frac{1.5}{2} + m_2 g \frac{1}{2} \\ u_f &= mg \frac{1.25}{2} + mg \frac{1.25}{2} = mg \times 1.25 \\ &= A \times 1.25 \rho g (1.25) \\ W_{\text{gravity}} &= u_i - u_f = A\rho \left[\frac{(1.5)^2}{2} + \frac{1^2}{2} - (1.25)^2 \right] g = 625\text{J} \end{aligned}$$

Resonance Eduventures Ltd.

Reg. Office & Corp. Office : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph. No.: +91-744-2777777, 2777700 | FAX No.: +91-022-39167222

To Know more : sms RESO at 56677 | Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555 | 7340010333 | Facebook.com/ResonanceEdu | Twitter.com/ResonanceEdu | www.youtube.com/resonance | blog.resonance.ac.in

This solution was download from Resonance JEE (MAIN) 2022 Solution portal

PAGE # 7

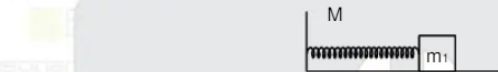
19. If M, L and T are measured with accuracy of 0.5% find accuracy in measurement of torque
- (1) 2.5% (2) 5% (3) 7.5% (4) 10%

Ans. (1)

Sol. $\tau = ML^2 T^{-2}$

$$\frac{\Delta\tau}{\tau} = \frac{\Delta M}{M} + 2\frac{\Delta L}{L} + 2\frac{\Delta T}{T} = 5 + 10 + 10 = 25\%$$

20. A block of mass m_1 oscillate, with amplitude A_1 another mass m_2 is gently placed over it when it crosses mean position and new system oscillates with amplitude A_2 .



Find $\frac{A_1}{A_2}$

$$(1) \sqrt{\frac{m_1 + m_2}{m_2}} \quad (2) \sqrt{\frac{m_1 + m_2}{m_1}} \quad (3) \sqrt{\frac{m_1 - m_2}{m_1}} \quad (4) \sqrt{\frac{2m_1 + m_2}{m_1}}$$

Ans. (2)

Sol. $m_1 A_1 \omega_1 = (m_1 + m_2) A_2 \omega_2$

$$m_1 A_1 \sqrt{\frac{k}{m_1}} = (m_1 + m_2) A_2 \sqrt{\frac{k}{(m_1 + m_2)}}$$

$$A_1 \times \sqrt{m_1} = A_2 \times \sqrt{m_1 + m_2}$$

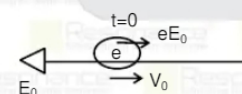
$$\frac{A_1}{A_2} = \sqrt{\frac{m_1 + m_2}{m_1}}$$

21. An electron has velocity $V_0 \hat{i}$ in an electric field $-E_0 \hat{i}$. Initial De-broglie wavelength is $\lambda_0 = \frac{h}{mv_0}$ find De-broglie wavelength as a function of time.

$$(1) \frac{h}{\lambda_0 - eE_0 t} \quad (2) \frac{h}{\lambda_0 + eE_0 t} \quad (3) \frac{h}{\lambda_0 + 2eE_0 t} \quad (4) \frac{h}{\lambda_0 + eE_0 t}$$

Ans. (4)

Sol.



$$\text{at } t = t \quad V = V_0 + \frac{eE_0 t}{m}$$

$$\lambda = \frac{h}{mv} = \frac{h}{mv_0 + eE_0 t}$$

$$\lambda = \frac{h}{\lambda_0 + eE_0 t}$$

Resonance Eduventures Ltd.

Reg. Office & Corp. Office : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph. No.: +91-744-2777777, 2777700 | FAX No.: +91-022-39167222

To Know more : sms RESO at 56677 | Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

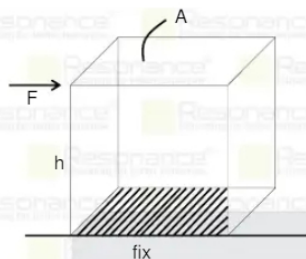
Toll Free : 1800 258 5555 | 7340010333 | facebook.com/ResonanceEdu | twitter.com/ResonanceEdu | www.youtube.com/resonance | blog.resonance.ac.in

This solution was download from Resonance JEE (MAIN) 2022 Solution portal

PAGE # 8

Resonance
Educating for better tomorrow | JEE MAIN-2022 | DATE : 27-07-2022 (SHIFT-1) | PAPER-1 | MEMORY BASED | PHYSICS

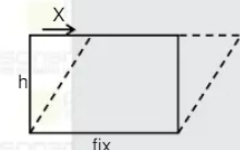
22.



A block of face area A and height h is acted upon by a force F (tangential). Find the lateral shift of top surface if modulus of rigidity is η .

- (1) $\frac{Ah}{F\eta}$ (2) $\frac{Fh}{A\eta}$ (3) $\frac{F\eta}{Ah}$ (4) $\frac{1}{2} \frac{Fh}{A\eta}$

Ans.
Sol.



$$\eta = \frac{F/A}{x/h} \Rightarrow x = \frac{Fh}{A\eta}$$

23. Equation of EM wave is $E = E_0 \sin(\omega t - kx + \phi)$ what is the ratio of electric and magnetic force on a charge moving with velocity $v = 3 \times 10^7$ m/s

- (1) 10 (2) 20 (3) 30 (4) 40

Ans.
Sol.

$$E_0 = cB_0$$

$$\frac{F_E}{F_m} = \frac{qE_0}{qvB_0} = \frac{c}{v} = \frac{3 \times 10^8}{3 \times 10^7} = 10$$

24. A tower of height 100 m on earth can send signal on earth to particular range. If range is to be increased to 3 times find the new height of tower required.



- (1) 300 (2) 500 (3) 900 (4) 700

Resonance Eduventures Ltd.

Reg. Office & Corp. Office : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph. No.: +91-744-2777777, 2777700 | FAX No.: +91-022-39167222

To Know more : sms RESO at 56677 | Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555 | 7340010333 | facebook.com/ResonanceEdu | twitter.com/ResonanceEdu | www.youtube.com/resonance | blog.resonance.ac.in

This solution was download from Resonance JEE (MAIN) 2022 Solution portal

PAGE # 9

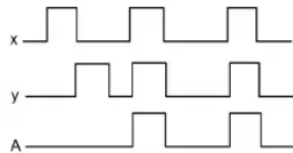
Ans. (3)

Sol. $d = \sqrt{2Rh}$

$$d^2 \propto h$$

New height is 900 m

25. If the input x & y of a logic gate is shown and its output A is also shown then the type of gate is



(1) OR

(2) NOR

(3) AND

(4) NAND

Ans. (3)

Sol. It is AND GATE

Resonance Eduventures Ltd.

Reg. Office & Corp. Office : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph. No.: +91-744-2777777, 2777700 | FAX No.: +91-022-39167222

To Know more : sms RESO at 56677 | Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555 | 7340010333 | Facebook.com/ResonanceEdu | Twitter.com/ResonanceEdu | www.youtube.com/resonance | blog.resonance.ac.in

This solution was download from Resonance JEE (MAIN) 2022 Solution portal

PAGE # 10

Resonance®
Educating for better tomorrow

JEE (Main) 2022
JUNE (SESSION-1) RESULT

लगातार दूसरे वर्ष, कोटा का **श्रेष्ठ परिणाम**, रेजोनेंस के नाम

JEE (Main) 2022
JUNE (Session-1)

OVERALL NTA SCORE*
99.998%ile

NTA SCORE (%ile)
100
in CHEMISTRY



VARDAN VERMA
Classroom Student



CHAITANYA AGGARWAL
Classroom Student

JEE (Adv.) 2021

AIR
8

BEST RANK
from Kota Classroom among
all Institutes of Kota

Highest Marks (114/120)
in Chemistry in India

* वरदान वर्मा का %ile Score कोटा में रहकर JEE की तैयारी करने वाले
सभी संस्थानों के सभी क्लासरूम विद्यार्थियों में से **HIGHEST %ile** है

As per logical information available in Public Domain till 16th July

ADMISSIONS OPEN: 2022-23

For Class XII Passed Students

TARGET

JEE (Main+Advanced) 2023

COURSE

VIJAY (JR)



CLASS STARTS
1st & 16th Aug

TARGET

JEE (Main) 2023

COURSE

AJAY (ER)



CLASS STARTS
1st, 16th & 29th Aug

Scholarship* upto 100%
on the basis of JEE (Main) Percentile Score

अपनी **स्कॉलरशिप** जानने के लिए **अपनी जेईई (मेन) परसेंटाइल वाट्सअप करें: 73400-10345**

Resonance Eduventures Ltd.

Kota Study Centre & Registered Corporate Office: CG Tower, A-46 & 52, IPHA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005
Tel. No.: 0744-2777777, 2777700 | CIN: U80302RJ2007PLC024029 | www.resonance.ac.in | contact@resonance.ac.in