JEE Main February 2021

Question Paper With Text Solution

25 Feb.| Shift-1

PHYSICS

MATRIX

JEE Main & Advanced | XI-XII Foundation| VI-X Pre-Foundation

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JEE MAIN FEB 2021 | 25TH FEB SHIFT-1
SECTION - A

1. An engine of a train, moving with uniform acceleration, passes the signal-post with velocity u and the last compartment with velocity v. The velocity with which middle point of the train passes the signal post is:

(1) $\sqrt{\frac{v^2+u^2}{2}}$ (2) $\sqrt{\frac{v^2-u^2}{2}}$ (3) $\frac{u+v}{2}$ (4) $\frac{v-u}{2}$

Ans. Offical Answer for NTA (1)

Sol. $v^2 = u^2 + 2as$ ......(1)

$v_1^2 = u^2 + 2a\left(\frac{s}{2}\right)$ ......(2)

From (1) & (2)

$$v_1^2 = u^2 + 2\left[\frac{v^2-u^2}{2s}\right]\left(\frac{s}{2}\right)$$

$$v_1 = \sqrt{\frac{u^2+v^2}{2}}$$

2. Given below are two statements :

Statement I : A speech signal of 2 kHz is used to modulate a carrier signal of 1 MHz. The bandwidth requirement for the signal is 4 kHz.

Statement II : The side band frequencies are 1002 kHz and 998 kHz.

In the light of the above statements, choose the

(1) Both Statement I and Statement II are false

(2) Statement I is false but Statement II is true

(3) Statement I is true but Statement II is false

(4) Both Statement I and Statement II are true

Ans. Offical Answer for NTA (4)

Sol. Part of theory

Maximum frequency = Carrier wave frequency + Signal frequency
Minimum frequency = Carrier wave frequency – Signal frequency

3. Match List - I with List - II

List - I	List - II
(a) h (Planck's constant)	(i) $[M L T^{-1}]$
(b) E (kinetic energy)	(ii) $[M L^2 T^{-1}]$
(c) V (electric potential)	(iii) $[M L^2 T^{-2}]$
(d) P (linear momentum)	(iv) $[ML^2 I^{-1} T^{-3}]$

Choose the correct answer from the options given below :

(1) $(a) \to (ii), (b) \to (iii), (c) \to (iv), (d) \to (i)$

(2) $(a) \to (iii), (b) \to (iv), (c) \to (ii), (d) \to (i)$

z

(3) $(a) \to (i), (b) \to (ii), (c) \to (iv), (d) \to (iii)$

(4) $(a) \to (iii), (b) \to (ii), (c) \to (iv), (d) \to (i)$ x

Ans. Offical Answer for NTA (1)

Sol. $E = h\nu$

$$[h] = \frac{M^1L^2T^2}{T^{-1}} = M^1L^2T^{-1}$$

$$E = \frac{1}{2}MV^2 = M^1L^2T^{-2}$$

$U = qV$

$[V] = M^1L^2I^{-1}T^{-3}$

$P = mV$

$[P] = M^1L^1T^{-1}$

4. Given below are two statements : one is labelled as Assertion A and the other is labelled as Reason R.

Assertion A : The escape velocities of planet A and B are same. But A and B are of unequal mass,

Reason R : The product of their mass and radius must be same. $M_1R_1 = M_2R_2$

In the light of the above statements, choose the most appropriate answer from the options given below

(1) A is not correct but R is correct

(2) Both A and R are correct but R is NOT the correct explanation of A

(3) A is correct but R is not correct

(4) Both A and R are correct and R is the correct explanation of A

Ans. Offical Answer for NTA (3)

Sol. $V_e = \sqrt{\frac{2GM}{R}}$ Reason - Wrong

(Depends on mass of Planet) Also $\frac{M_1}{R_1} = \frac{M_2}{R_2}$

It does not depend on mass of satellite

5. Two radioactive substances X and Y originally have N_1 and N_2 nuclei respectively. Half life of X is half of the half life of Y. After three half lives of Y, number of nuclei of both are equal.

The ratio $\frac{N_1}{N_2}$ will be equal to:

(1) $\frac{3}{1}$ (2) $\frac{8}{1}$ (3) $\frac{1}{3}$ (4) $\frac{1}{8}$

Ans. Offical Answer for NTA (2)

Sol. $N = N_0e^{-\lambda t}$, Half life = $\frac{\ell n2}{\lambda}$

Given -

$(t_{1/2})_x = \frac{1}{2}(t_{1/2})_y$

$\frac{\ell n^2}{\lambda_x} = \frac{1}{2}\frac{\ell n^2}{\lambda_y}$

$\lambda_x = 2\lambda_y$

After = $t = 3t_{1/2}$

$N_x = N_y$

$N_1e^{-\lambda_x(3t)} = N_2e^{-\lambda_y(3t)}$

$\frac{N_1}{N_2} = e^{3(2\lambda_y)t - 3t\lambda_y} = e^{3\lambda_y t} = e^{3\ln 2} = 8$

$\frac{N_1}{N_2} = \frac{8}{1}$

6. A proton, a deuteron and an α particle are moving with same momentum in a uniform magnetic field. The ratio of magnetic forces acting on them is_______and their speed is_______,in the ratio.

(1) 1:2:4 and 2:1:1 (2) 4:2:1 and 2:1:1 (3) 1:2:4 and 1:1:2 (4) 2:1:1 and 4:2:1

Ans. Offical Answer for NTA (4)

Sol. $m \rightarrow v_1$ (Proton) $2m \rightarrow v_2$ (Deuteron) $4m \rightarrow v_3$ (α Particle)

$mv, = 2mv_2 = 4mv3$

$v_1 = 2v_2 = 4v_3$

$v_1 : v_2 : v_3 = 4 : 2 : 1$

$F = q(\vec{v} \times \vec{B})$

$F_p = ev_1B$

$F_d = ev_2B$

$F_\alpha = 2ev_3B$

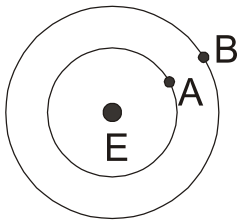
So $F_p : F_d : F_\alpha$

$v_1 : v_2 : 2v_3$

2 : 1 : 1

7. Two satellites A and B of masses 200 kg and 400 kg are revolving round the earth at height of 600 km and 1600 km respectively.

If T_A and T_B are the time periods of A and B respectively then the value of $T_B - T_A$:



[Given : radius of earth = 6400 km, mass of earth = 6 x 10^{24} kg]

(1) 1.33 x 10^3 s (2) 4.24 x 10^3 s (3) 4.24 x 10^2 s (4) 3.33 x 10^2 s

Ans. Offical Answer for NTA (1)

Sol. $R_A = 7000$ km

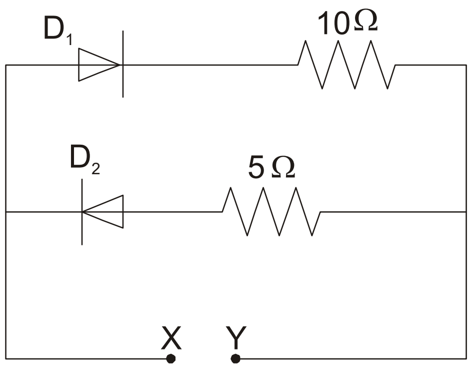
$R_B = 8000$ km

$$T = \frac{2\pi R^{3/2}}{\sqrt{GM}}$$

$$T_B - T_A = \frac{2\pi}{\sqrt{GM_e}} \left[(8000\times10^3)^{3/2} - (7000\times10^3)^{3/2}\right]$$

$$= 1.287\times10^3 \text{ sec}$$

8. A 5 V battery is connected across the points X and Y. Assume D_1 and D_2 to be normal silicon diodes. Find the current supplied by the battery if the +ve terminal of the battery is connected to point X.



(1) ~ 1.5A (2) ~ 0.86A (3) ~ 0.43 A (4) ~ 0.5A

Ans. Offical Answer for NTA (3)

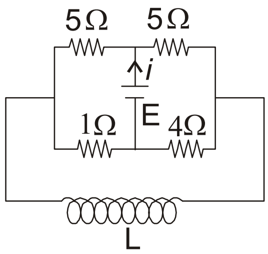
Sol. $D_1 \rightarrow$ forward biased

$D_2 \rightarrow$ Reverse biased

$I = \dfrac{(5-0.7)}{10}$

$= 0.43$ A

9. The current (i) at time t=0 and t=∞ respectively for the given circuit is :

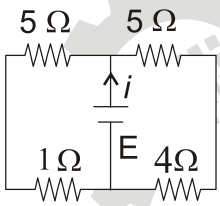


(1) $\dfrac{18E}{55}, \dfrac{5E}{18}$ (2) $\dfrac{10E}{33}, \dfrac{5E}{18}$ (3) $\dfrac{5E}{18}, \dfrac{10E}{33}$ (4) $\dfrac{5E}{18}, \dfrac{18E}{55}$

Ans. Offical Answer for NTA (3)

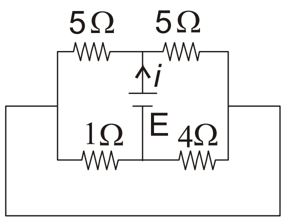
Sol. at t = 0

(Inductor acts as an open wire i.e '∞' resistance)



$R_{eq}\ \dfrac{6\times 9}{15} = \dfrac{18}{5}$, $\quad I_1 = \dfrac{E}{\left(\dfrac{18}{5}\right)} = \dfrac{5E}{18}$

at $t \rightarrow \infty$



$R_{eq} = \frac{33}{10}$

$I_2 = \frac{E}{\left(\frac{33}{10}\right)} = \frac{10E}{33}$

10. If the time period of a two meter long simple pendulum is 2 s, the acceleration due to gravity at the place where pendulum is executing S.H.M is :

(1) $9.8ms^{-2}$ (2) $\pi^2 ms^{-2}$ (3) $2\pi^2 ms^{-2}$ (4) $16m/s^{-2}$

Ans. Offical Answer for NTA (3)

Sol. $T = 2T\sqrt{\frac{L}{g}}$

Given L = 2 m
T= 2 Sec

$2 = 2\pi\sqrt{\frac{2}{g}}$

$g = 2\pi^2$ m/sec^2

11. Magnetic fields at two points on the axis of a circular coil at a distance of 0.05 m and 0.2 m from the centre are in the ratio 8 : 1. The radius of coil is ________.

(1) 0.15 m (2) 0.2 m (3) 0.1 m (4) 1.0 m

Ans. Offical Answer for NTA (3)

Sol. $B \propto \frac{1}{(r^2+x^2)^{3/2}}$ (Due to a circular coil on axis)

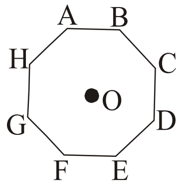
$\frac{B_1}{B_2} = \left(\frac{r^2+x_2^2}{r^2+x_1^2}\right)^{3/2} = \frac{8}{1}$ $\begin{bmatrix} x_1 = 0.05m \\ x_2 = 0.2m \end{bmatrix}$

$r = \frac{1}{10}$ meters = 0.1 meter

12. In an octagon ABCDEFGH of equal side, what is the sum of

$\overrightarrow{AB}+\overrightarrow{AC}+\overrightarrow{AD}+\overrightarrow{AE}+\overrightarrow{AF}+\overrightarrow{AG}+\overrightarrow{AH},$

if, $\overrightarrow{AO}=2\hat{i}+3\hat{j}-4\hat{k}$



(1) $16\hat{i}-24\hat{j}+32\hat{k}$ (2) $-16\hat{i}-24\hat{j}+32\hat{k}$ (3) $16\hat{i}+24\hat{j}-32\hat{k}$ (4) $16\hat{i}+24\hat{j}+32\hat{k}$

Ans. Offical Answer for NTA (3)

Sol. $\vec{y}=\overline{AB}+\overline{AC}+\overline{AD}+\overline{AE}+\overline{AF}+\overline{AG}+\overline{AH}$

$\overline{y}=\overline{AB}+(\overline{AB}+\overline{BC})+(\overline{AB}+\overline{BC}+\overline{CD})+(\overline{AB}+\overline{BC}+\overline{CD}+\overline{DE})$

$+(\overline{AB}+\overline{BC}+\overline{CD}+\overline{DE}+\overline{EF})+(\overline{AB}+\overline{BC}+\overline{CD}+\overline{DE}+\overline{EF}+\overline{FG})$

$+(\overline{AB}+\overline{BC}+\overline{CD}+\overline{DE}+\overline{EF}+\overline{FG}+\overline{GH})$

Also $\overrightarrow{EF}=-\overrightarrow{AB}$

$\overline{FG}=-\overline{BC}$

$\overline{GH}=-\overline{ED}$

$\overline{HA}=-\overline{DE}$

So $\overline{Y}=4(\overline{AB}+\overline{BC}+\overline{CD}+\overline{DE})=4\overline{AE}=8\overline{AO}$

$\overline{Y}=8[2\,\hat{i}+3\hat{i}-4\hat{k}]$

$=16\hat{i}+24\hat{j}-32\hat{k}$

13. Two coherent light sources having intensity in the ratio $2x$ produce an interference pattern.

The ratio $\frac{I_{max}-I_{min}}{I_{max}+I_{min}}$ will be :

(1) $\frac{\sqrt{2x}}{2x+1}$ (2) $\frac{2\sqrt{2x}}{2x+1}$ (3) $\frac{2\sqrt{2x}}{x+1}$ (4) $\frac{\sqrt{2x}}{x+1}$

Ans. Offical Answer for NTA (2)

Sol. $\frac{I_1}{I_2} = 2x$

$I_1 = 2xI_2$

$I_{max} = \left(\sqrt{I_1} + \sqrt{I_2}\right)^2$

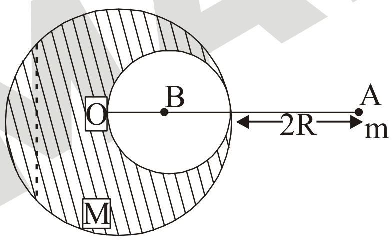
$I_{min} = \left(\sqrt{I_1} - \sqrt{I_2}\right)^2$

$I_{max} - I_{min} = 4\sqrt{I_1 I_2}$

$I_{max} + I_{min} = 2\sqrt{I_1 + I_2}$

So $\left(\frac{I_{max} + I_{min}}{I_{max} - I_{min}}\right) = \frac{2\sqrt{I_1 I_2}}{I_1 + I_2} = \frac{2\sqrt{2}x}{(2x+1)}$

14. A solid sphere of radius R gravitationally attracts a particle placed at 3R from its centre with a force F_1. Now a spherical cavity of radius $\left(\frac{R}{2}\right)$ is made in the sphere (as shown in figure) and the force becomes F_2. The value of $F_1 : F_2$ is



(1) 50 : 41 (2) 25 : 36 (3) 41 : 50 (4) 36 : 25

Ans. Offical Answer for NTA (1)

Sol. $F_1 = \frac{GMm}{9R^2}$

$F_2 = \frac{GMm}{9R^2} - \frac{GMm}{50R^2}$

$F_2 = \frac{GMm}{R^2}\left(\frac{1}{9} - \frac{1}{50}\right) = \frac{41}{450}\frac{GMm}{R^2}$

$\frac{f_1}{f_2} = \frac{50}{41}$

15. A diatomic gas, having $C_P = \frac{7}{2}R$ and $C_V = \frac{5}{2}R,$ is heated at constant pressure. The ratio dU : dQ : dW:

(1) 5 : 7 : 3 (2) 3 : 7: 2 (3) 3 : 5 : 2 (4) 5 : 7 : 2

Ans. Offical Answer for NTA (4)

Sol. $dQ = nC_p dt$

$du = nC_v\, dt$

$dW = n\,(C_p - C_v)\, dt$

du : dQ : dW

$C_v : C_p : (C_p - C_v)$

$= \frac{5}{2}R : \frac{7}{2}R : R$

5 : 7 : 2

16. The pitch of the screw gauge is 1 mm and there are 100 divisions on the circular scale. When nothing is put in between the jaws, the zero of the circular scale lies 8 divisions below the reference line. When a wire is placed between the jaws, the first linear scale division is clearly visible while 72^{nd} division on circular scale coincides with the reference line. The radius of the wire is :

(1) 1.80 mm (2) 1.64 mm (3) 0.90 mm (4) 0.82 mm

Ans. Offical Answer for NTA (4)

Sol. Least count = $\frac{1}{100}$ = 0.01 mm

zero error = +8

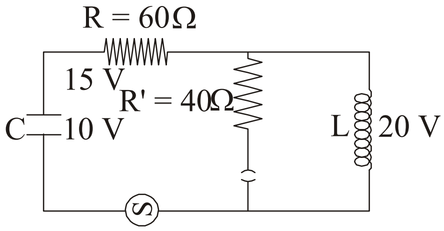
zero correction = –8 × L.C.

Diameter of wire = 1 + (72 – 8) × L.C.

= 1.64 mm

Radius = $\frac{1.64}{2} = 0.82$ mm

17. The angular frequency of alternating current in a L-C-R circuit is 100 rad/s. The components connected are shown in the figure. Find the value of inductance of the coil and capacity of condenser.



(1) 0.8 H and 250 μF (2) 0.8 H and 150 μF (3) 1.33 H and 150 μF (4) 1.33 H and 250 μF

Ans. Offical Answer for NTA (1)

Sol. Current in R' = $\frac{20}{40} = \frac{1}{2}$A

Current in R = $\frac{15}{60} = \frac{1}{4}$A

$V_C = 10V = X_C I$

$X_C = 40 = \frac{1}{\omega C} \Rightarrow C = 250\mu F$

Also $V_L = 20 = X_L I$

$X_L = 80 = \omega L$

L = 0.8 H

18. An α particle and a proton are accelerated from rest by a potential difference of 200 V. After this, their de Broglie wavelengths are λ_α and λ_p respectively. The ratio $\frac{\lambda_p}{\lambda_\alpha}$ is:

(1) 2.8 (2) 8 (3) 7.8 (4) 3.8

Ans. Offical Answer for NTA (1)

Sol. $\lambda = \frac{h}{p} = \frac{h}{\sqrt{2mqV}}$ (V – μ same for both)

so $\lambda = \frac{1}{\sqrt{m}\sqrt{q}}$

$$\frac{\lambda_p}{\lambda_\alpha} = \frac{\sqrt{m_\alpha q_\alpha}}{\sqrt{m_p q_p}} = \frac{\sqrt{8}}{1} = \frac{2.8}{1}$$

19. A student is performing the experiment of resonance column. The diameter of the column tube is 6 cm. The frequency of the tuning fork is 504 Hz. Speed of the sound at the given temperature is 336 m/s. The zero of the metre scale coincides with the top end of the resonance column tube. The reading of the water level in the column when the first resonance occurs is :

(1) 14.8 cm (2) 16.6 cm (3) 18.4 cm (4) 13 cm

Ans. Offical Answer for NTA (1)

Sol. $V = f\lambda$

So $\lambda = \frac{v}{f} = \frac{336}{504}$

Also $l + e = \lambda / 4$ $(e = 0.6 \times r)$

$l = 14.87$ cm

20. Given below are two statements : one is labelled as Assertion A and the other is labelled as Reason R.

Assertion A : When a rod lying freely is heated, no thermal stress is developed in it.

Reason R : On heating, the length of the rod increases.

In the light of the above statements, choose the correct answer from the options given below :

(1) A is false but R is true

(2) Both A and R are true but R is NOT the correct explantion of A

(3) A is true but R is false

(4) Both A and R are true and R is the correct explanation of A

Ans. Offical Answer for NTA (2)

Sol. Both are true (Part of theory)

SECTION - B

1. The potential energy (U) of a diatomic molecule is a function dependent on r (inter-atomic distance) as

$$U = \frac{\alpha}{r^{10}} - \frac{\beta}{r^5} - 3$$

Where, α and β are positive constants. The equilibrium distance between two atoms will be

$\left(\frac{2\alpha}{\beta}\right)^{\frac{a}{b}}$, where a = _____________.

Given 94

Ans. Offical Answer for NTA (1)

Sol. $U = \frac{\alpha}{r^{10}} - \frac{\beta}{r^5} - 3$

$$F = \frac{-du}{dr} = \frac{\alpha(-10)}{r^{11}} - \frac{\beta(-5)}{r^6}$$

At equilibrium $F = 0$

$$r = \left(\frac{2\alpha}{\beta}\right)^{1/5} = \left(\frac{2\alpha}{\beta}\right)^{a/b}$$

$$\frac{a}{b} = \frac{1}{5}$$

$a = 1$
$b = 5$

2. 512 identical drops of mercury are charged to a potential 2 V each. The drops are joined to form a single drop. The potential of this drop is _________V.

Given _ _

Ans. Offical Answer for NTA (128)

Sol. For small drop | Re Radius of biager drops

$\frac{Kq}{r} = 2$ | $\frac{4}{3}\pi R^3 = 512(\frac{4}{3}\pi r^3)$

R= 8r

Potential of Larg drop $\frac{k(572)}{R}q = 64(\frac{kq}{r}) = 128\,V$

3. A transmitting station releases waves of wavelength 960 m. A capacitor of 2.56 μF is used in the resonant circuit. The self inductance of coil necessary for resonance is _______x 10^{-8} H,
Given _ _

Ans. Offical Answer for NTA (10)

Sol. $v = f\lambda$

$$f = \frac{v}{\lambda} = \frac{3\times10^8}{960}$$

Also at resonance

$$\omega^2 = \frac{1}{LC}$$

$$L = \frac{1}{\omega^2 C} = \frac{1}{\frac{4\pi^2(3\times10^8)^2}{(960)^2}\times2.56\times10^{-6}}$$

$$= 10\times10^{-8}\,H$$

4. In a certain thermodynamical process, the pressure of a gas depends on its volume as kV^3.The work done when the temperature changes from 100ºC to 300ºC will be ______nR,
where n denotes number of moles of a gas.
Given _ _

Ans. Offical Answer for NTA (50)

Sol. $P = kv^3$

$W = \int pdv$

$$W = \frac{k}{4}(v_f^4 - v_i^4) \quad ....(1)$$

Also PV = nRT

$nRT = kv^4$ ....(2)

$$\text{So}\ \left.\begin{aligned} kv_f^4 &= nR(300+273) \\ kv_i^4 &= nR(100+273)\end{aligned}\right\} \rightarrow k(v_f^4 - v_i^4) = 200\,Rn \quad ......(3)$$

From (1) & (3)

$$W = \frac{200Rn}{4} = 50nR$$

5. A small bob tied at one end of a thin string of length 1 m is describing a vertical circle so that the maximum and minimum tension in the string are in the ratio 5 :1. The velocity of the bob at the highest position is _______m/s. (Take g = 10 m/s^2)

Given 6

Ans. Offical Answer for NTA (5)

Sol. T_1 - maximum Tension

T_2 - Minimum Tension

From Circular Motion

$$\left.\begin{array}{l} T_1 - T_2 = 6mg \\ \dfrac{T_1}{T_2} = 5 \end{array}\right\} \Rightarrow T_1 = \frac{15}{2}mg,\ T_2 = \frac{3}{2}mg$$

$$T_2 + mg = \frac{mv^2}{R}$$

V = 5 m/sec

6. The same size images are formed by a convex lens when the object is placed at 20 cm or at 10 cm from the lens. The focal length of convex lens is _______cm.

Given 15

Ans. Offical Answer for NTA (15)

Sol. as size of image is same so

$|m_1| = |m_2|$

$$\left|\frac{f}{f+u_1}\right| = \left|\frac{f}{f+u_2}\right| \Rightarrow \frac{f}{f+u_1} = \frac{-f}{f+u_2}$$

(as one 'u' real & one is virtual)

$f + u_2 = -f - u_1$

$2f = -u_2 - u_1$

$2f = -(-10)-(-20) \Rightarrow f = 15$ cm

7. A coil of inductance 2 H having negligible resistance is connected to a source of supply whose voltage is given V = 3t volt. (where t is in second.) If the voltage is applied when t=0, then the energy stored in the coil after 4 s is _______J.

Given _ _

Ans. Offical Answer for NTA (144)

Sol. $V = \frac{LdI}{dt}$

$I = \int_0^4 \frac{3t}{2} dt$

I = 12A

$E = \frac{1}{2} LI^2$

E = 144 J

8. A monoatomic gas of mass 4.0 u is kept in an insulated container. Container is moving with velocity 30 m/s. If container is suddenly stopped then change in temperature of the gas (R = gas constant) is $\frac{x}{3R}$. Value of x is ______.

Given 5

Ans. Offical Answer for NTA (3600)

Sol. KE is used in raising the temperature

$\left(\frac{1}{2} mv^2\right) n = nC_v \Delta T$

$\Delta T = \frac{MV^2}{3R}$ $\quad$ (as $C_v = \frac{3R}{2}$)

$\Delta T = \frac{3600}{3R}$

So, x = 3600

9. In the given circuit of potentiometer, the potential difference E across AB (10 m length) is larger than E^1 and E^2 as well. For key K_1 (closed), the jockey is adjusted to touch the wire at point J_1 so that there is no deflection in the galvanometer. Now the first battery (E_1) is replaced by second battery (E_2) for working by making K_1 open and K_2 closed. The galvanometer gives then null deflection at J_2. The value of $\frac{E_1}{E_2}$ is $\frac{a}{b}$, where a = ________,

Given _ _

Ans. Offical Answer for NTA (1)

Sol. As $E \propto L$ (L = Balanced length)

So $E_1 = \lambda(380)$ [λ = potential Gradient]

$E_2 = \lambda\ (760)$

So $\frac{E_1}{E_2} = \frac{1}{2} = \frac{a}{b}$ a = 1, b = 2

10. The electric field in a region is given by $\vec{E} = \left(\frac{3}{5}E_0\hat{i} + \frac{4}{5}E_0\hat{j}\right)\frac{N}{C}$. The ratio of flux of reported field through the rectangular surface of area 0.2 m^2 (Parallel to y–z plane) to that of the surface of area 0.3 m^2 (parallel to x–z plane) is a : b where a = _________,

[Here $\hat{i}, \hat{j}$ and $\hat{k}$ are unit vectors along x, y and z-axes respectively]

Given 3

Ans. Offical Answer for NTA (1)

Sol. As $\phi = \overline{E}.\overline{A}$

For Y-Z Plane, $\overline{A_1} = 0.2\hat{i}$

For X - Z Plane, $\overline{A_2} = 0.3\hat{j}$

$\phi_1 = \overline{E} \cdot \overline{A_1} = \frac{0.6}{5}E_0$

$\phi_2 = \overline{E} \cdot \overline{A_2} = \frac{1.2}{5}E_0$

So, $\frac{\phi_2}{\phi_1} = \frac{1}{2} = \frac{a}{b}$

$\Rightarrow a = 1$