

JEE MAIN 2025 **SESSION-2** **SHIFT-2 EVENING**

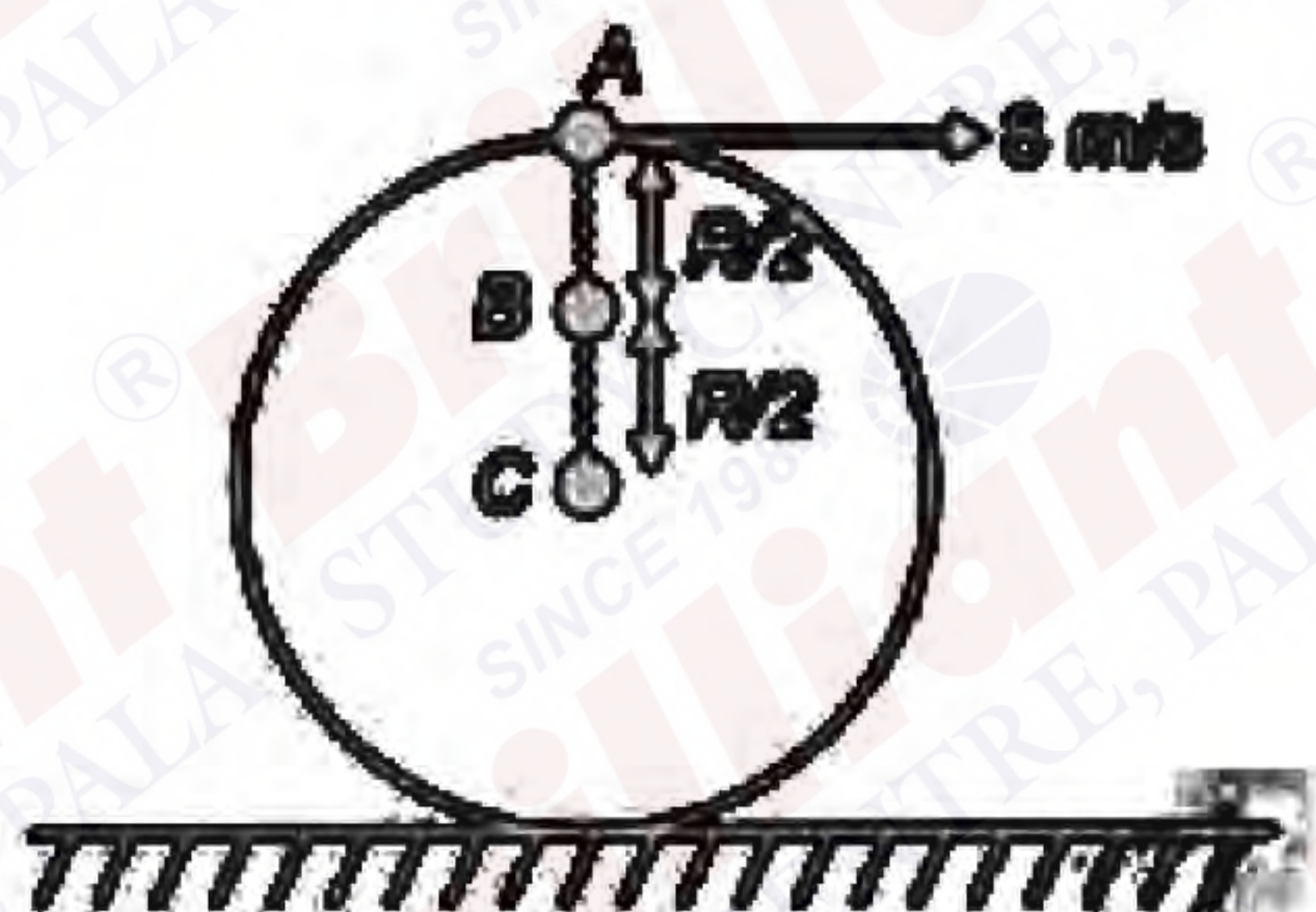


SCAN ME

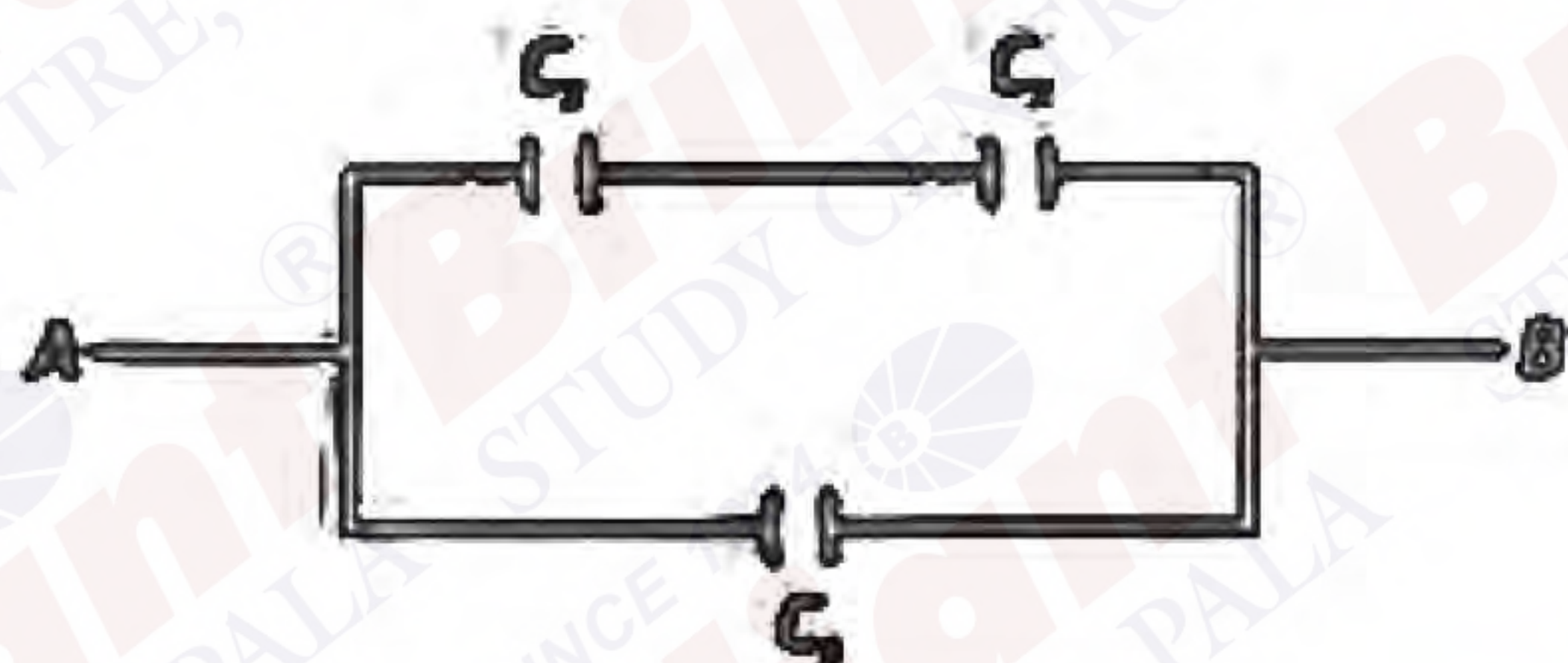
VIDEO SOLUTION

MEMORY BASED QUESTIONS

1. A disc is performing pure rolling if speed of top point is 8m/s. Find speed of point B.



- 1) 2m/s 2) 4m/s 3) 6m/s 4) 8m/s
2. The equivalent capacitance A and B is

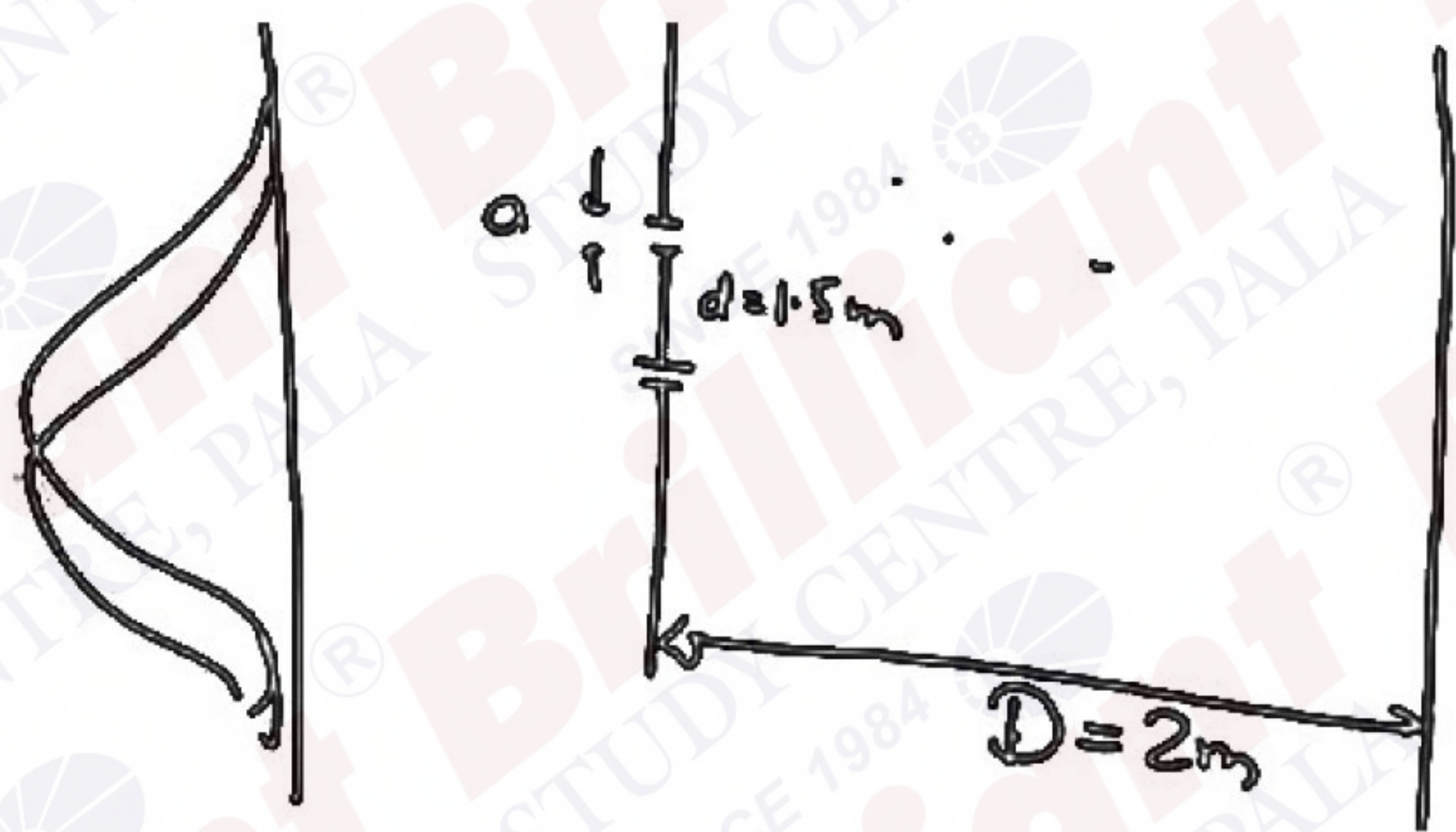


- 1) $\frac{C_1 C_2 + C_2 C_3 + C_1 C_3}{C_2 + C_3}$
- 2) $\frac{C_1 C_2 + C_1 C_3 + C_2 C_3}{C_1 + C_2}$
- 3) $\frac{2C_1 C_2 + C_2 C_3}{C_2 + C_3}$
- 4) $\frac{2C_2 C_3 + C_1 C_2}{C_1 + C_3}$
3. A particle of mass m is at a distance 3R from the centre of Earth. Find minimum kinetic energy of particle to leave earth's field (R: Radius of Earth)



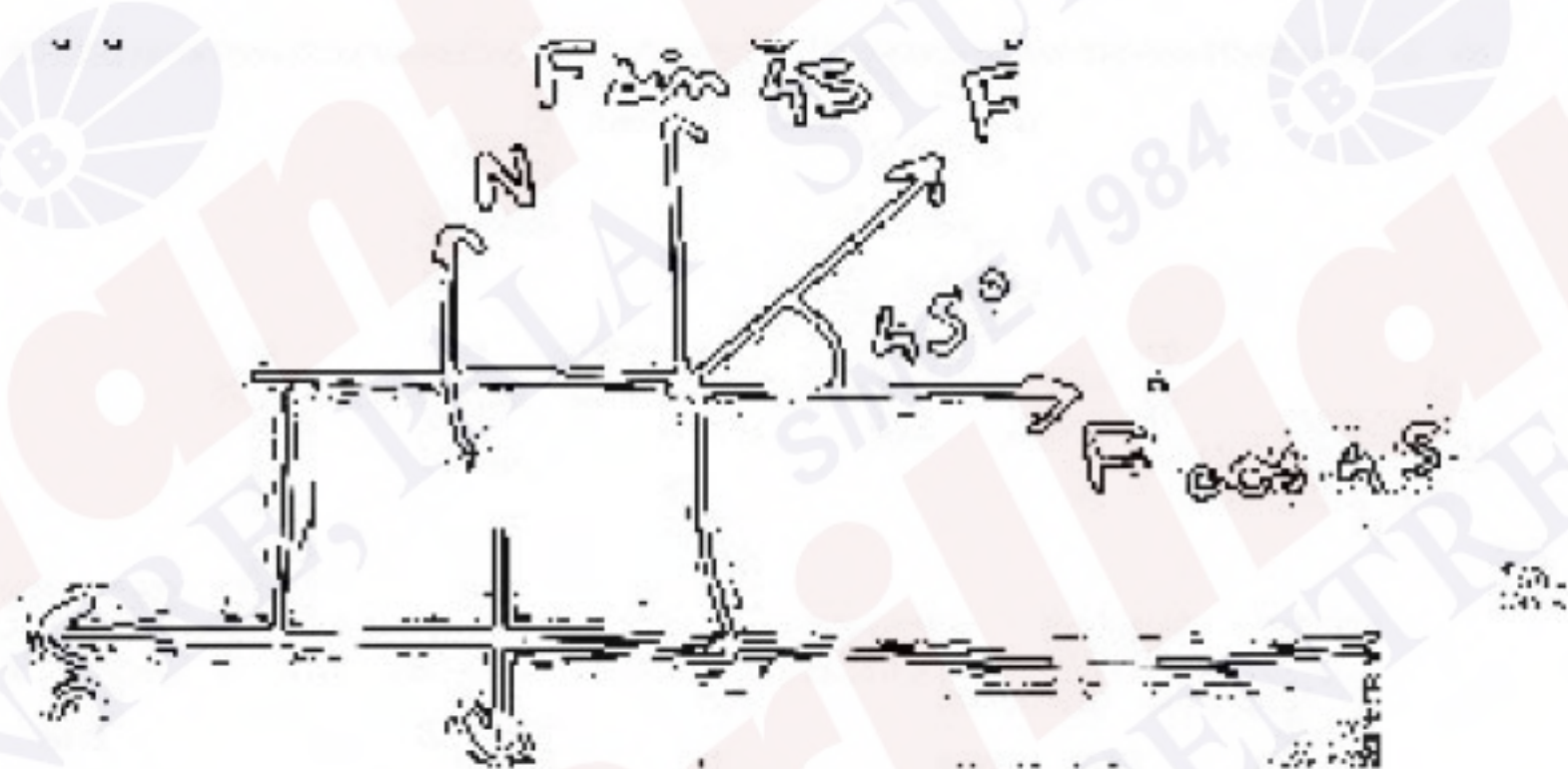
- 1) $\frac{mgR}{3}$ 2) 3mgR 3) $\frac{2}{3}mgR$ 4) $\frac{mgR}{2}$

4. In a YDSE setup, the slits are separated by 1.5mm and the distance between slits and screen is 2m. On using light of wavelength 400nm, it is observed that 20 maximas of double slit experiment lie inside the central maxima of single diffraction. The width of each slit is — μm



5. Displacement of a wave is expressed as $x(t) = 5 \cos\left(628t + \frac{\pi}{2}\right)$ m the wavelength of wave when its velocity is 300m/s is
 1) 0.5m 2) 5m 3) 0.33 m 4) 3m

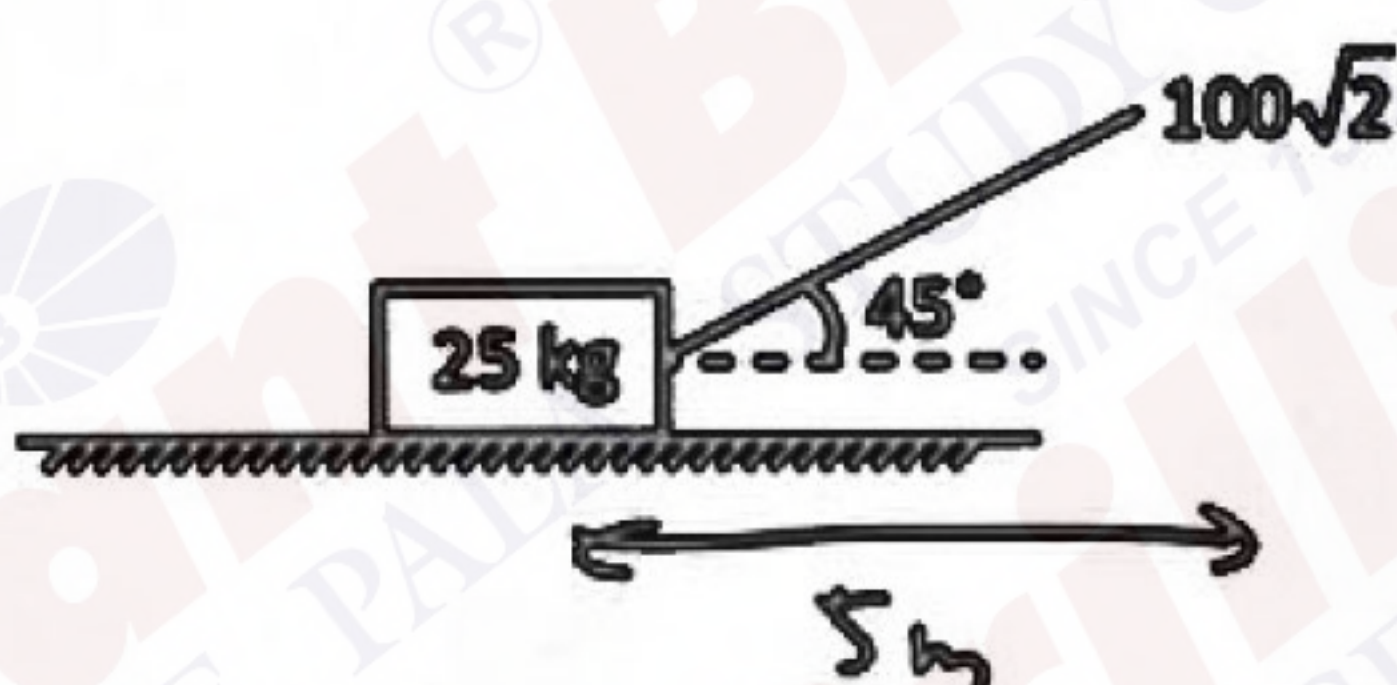
6. A block of mass 25kg is pulled along a horizontal surface by a force at an angle 45° with the horizontal. The friction coefficient b/w the block and the surface is 0.25. The block travels at a uniform velocity, the work done by the applied force during a displacement of 5m of block is



- 1) 735J 2) 490J 3) 245J 4) 970J
7. A metallic ring is uniformly charged as shown in fig. AC & BD are two mutually perpendicular diameters. Electric field due to arc AB at 'O' is E in magnitude. What would be the magnitude of electric field at 'O' due to arc ABC?

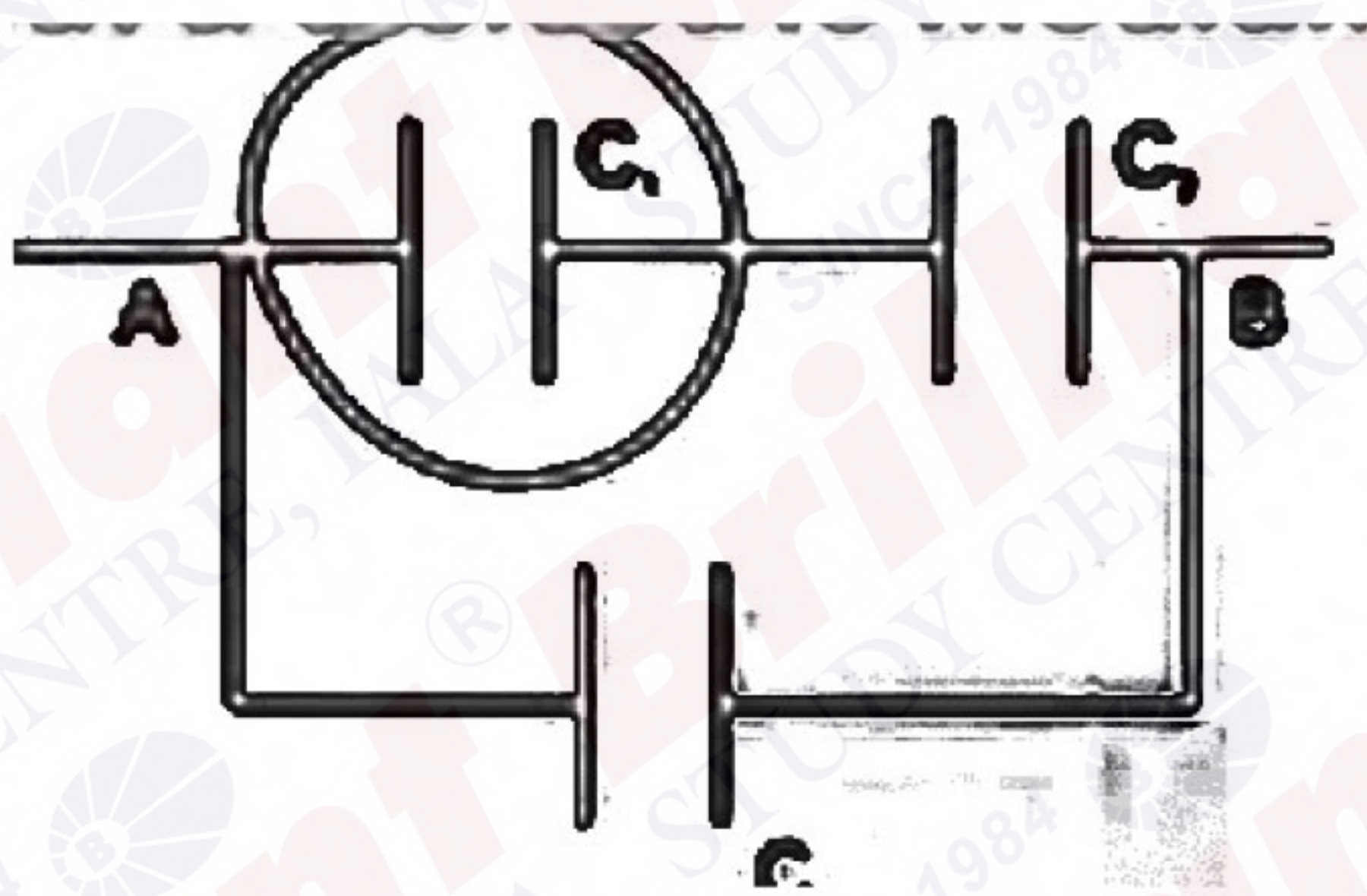


- 1) $\sqrt{2}E$ 2) Zero 3) $E/2$ 4) $2E$
8. If the displacement of the block is 5m, the work done by force applied is (coefficient of friction between block and surface is $\frac{1}{4}$)



- 1) $500\sqrt{2}J$ 2) 250J 3) 100J 4) 500J

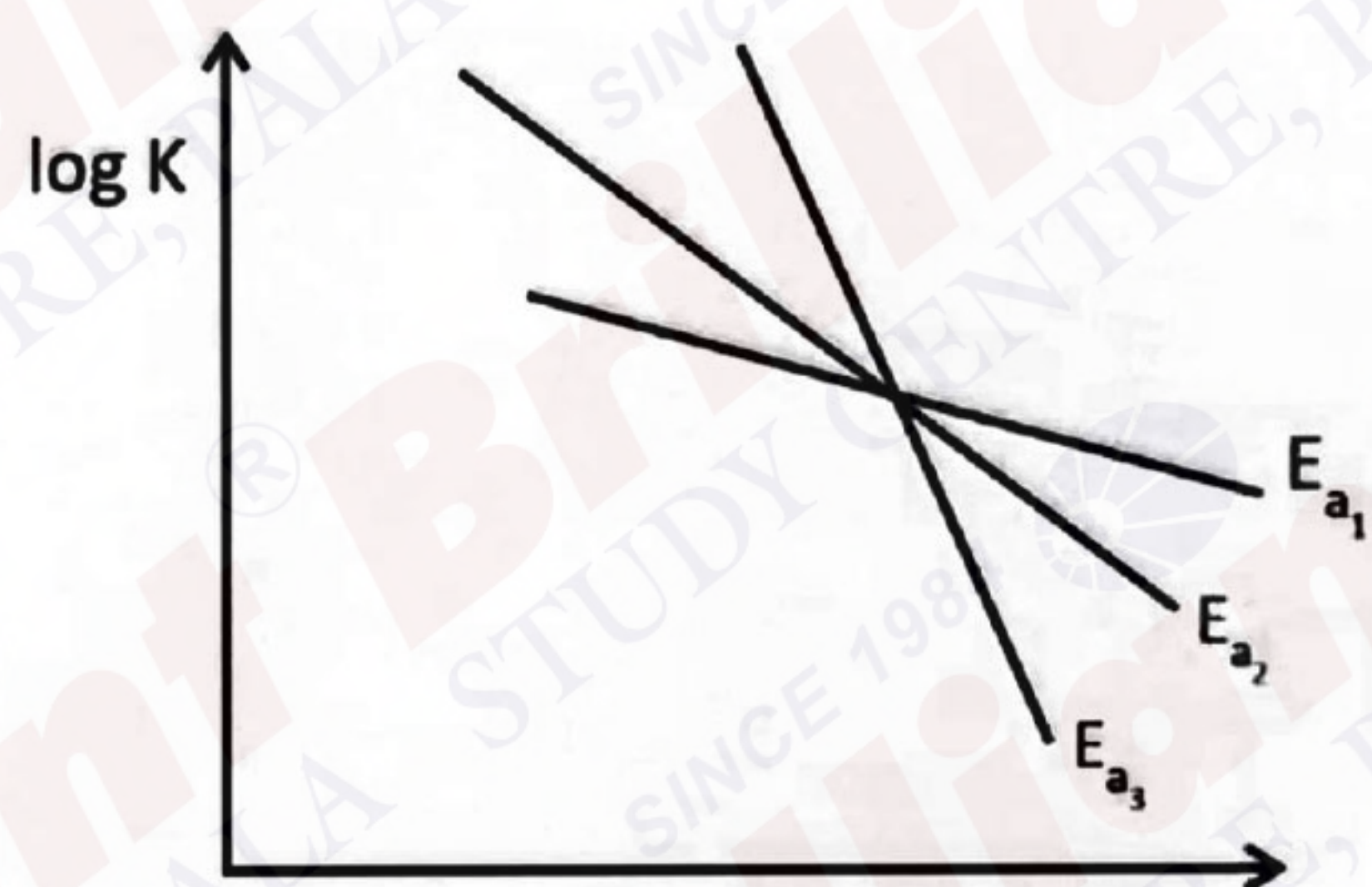
9. The dimensional formula of the ratio of electrical dipole moment to the magnetic moment is $M^P L^Q T^R A^S$. Then P, Q, R and S are
 1) 0, -1, 1, 0 2) 0, 1, -1, 0 3) 0, 1, 0, -1 4) 0, 1, 0, 1
10. Two polarisers P_1 & P_2 are aligned in such a way that intensity is zero, P_3 polariser is inserted between P_1 and P_2 such that final transmitted ray will have the maximum intensity. Find angle between P_1 and P_3
 1) $\pi/4$ 2) $\pi/2$ 3) $\pi/3$ 4) $\pi/8$
11. Three parallel plate capacitors C_1, C_2, C_3 each of capacitances $5\mu F$ are connected as the effective capacitance between points A & B, when the space between the parallel plates of C_1 capacitor is filled with a dielectric medium having dielectric constant of 4 is



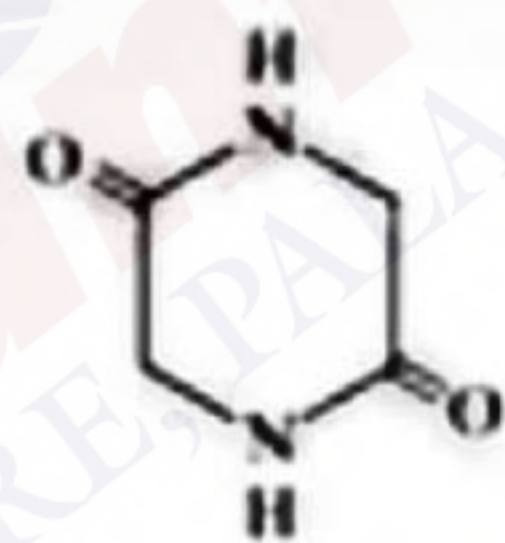
12. The ratio of electric dipole moment to magnetic dipole moment is $M^P L^Q T^R A^S$ then $P + Q$?
13. A wheel is rolling on a plane surface the speed of a particle on the highest point of the rim is $8m/s$, the speed of the particle on the rim of the wheel at the same level as the centre of the wheel is
14. Displacement of a wave is expressed as $x(t) = 5 \cos\left(628t + \frac{\pi}{2}\right)m$. the wavelength of wave when its velocity is $300m/s$ is
 1) $0.5m$ 2) $5m$ 3) $0.33m$ 4) $3m$

- 1) Statement - I is correct and statement-II is incorrect
- 2) Statement-I is incorrect and statement-II is correct
- 3) Both statement-I and II are correct
- 4) Both statement-I and II are incorrect

5. Consider the following graph between Rate Constant (K) and $\frac{1}{T}$



- 1) $E_{a1} > E_{a2} > E_{a3}$ 2) $E_{a3} > E_{a2} > E_{a1}$
 3) $E_{a3} > E_{a1} > E_{a2}$ 4) $E_{a1} > E_{a3} > E_{a2}$
6. A dipeptide 'x' on complete hydrolysis gives 'y' and 'z'. y on treatment with aq. HNO_2 produces lactic acid on the other hand 'z' on heating gives the following molecule. Based on the information the given dipeptide is



- 1) Alanine - Glycine 2) Valine - Glycine
 3) Valine - Leucine 4) Alanine - Alanine
7. **Statement-1:- Alcohol is prepared from alkyl halide in presence of aq. KOH by elimination** $R-X \xrightarrow[\text{SN}]{\text{aq. KOH}} R-OH$
Statement-2:- Alkenes are prepared from alkyl halide with alc. KOH by β -elimination
1. Statement - 1 and Statement - 2 are correct
 2. Statement - 1 and Statement - 2 are incorrect
 3. Statement - 1 is true and Statement - 2 is false
 4. Statement - 1 is false and Statement - 2 is true

1. $\cot^{-1}\left(\frac{7}{4}\right) + \cot^{-1}\left(\frac{19}{4}\right) + \cot^{-1}\left(\frac{39}{4}\right) + \dots \infty$

1. $\cot^{-1}(2)$

2. $\cot^{-1}\left(\frac{1}{2}\right)$

3. $\cot^{-1}\left(\frac{1}{3}\right)$

4. $\cot^{-1}(3)$

2. Let $L_1: \frac{x-1}{3} = \frac{y}{4} = \frac{z}{5}$ and $L_2: \frac{x-p}{2} = \frac{y}{3} = \frac{z}{4}$. If the shortest distance between L_1 and L_2 is $\frac{1}{\sqrt{6}}$. Then possible value of p is

1. 3

2. 5

3. 5

4. 7

3. Let the mean & variance of observation $\overbrace{2,3,3,4,5,7}, \overbrace{a}, \overbrace{b}$ is 4 and 2, then mean deviation about mode of the observation is

4. If $\int \frac{(\sqrt{1+x^2}+x)^{10}}{(\sqrt{1+x^2}-x)^9} dx = \frac{1}{m} \left[(\sqrt{1+x^2}+x)^n (n\sqrt{1+x^2}-x) \right] + c$, where c is the constant of integration and $m, n \in \mathbb{N}$ then $m+n$ is _____

5. $\sum_{k=1}^n \left(\alpha^k + \frac{1}{\alpha^k} \right)^2 = 20$, α is one of the root of $x^2 + x + 1 = 0$ then $n = ?$