PAPER SOLUTION

From Meerut

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29	2nd

Aryan Agarwal
Founder and CEO
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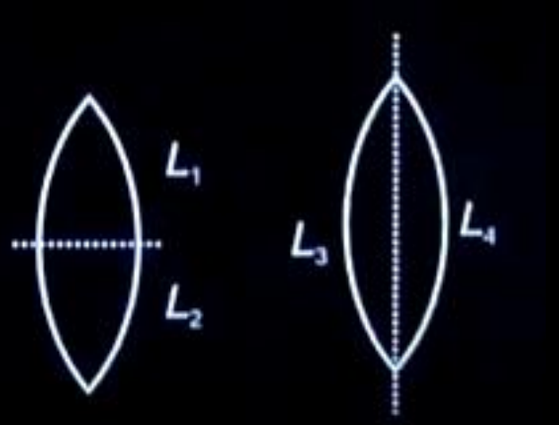
Question Paper

JEE MAIN 2025 LIVE PAPER DISCUSSION

#Q. An equiconvex lens is cut in two ways as shown. if the focal length of the parts are as mentioned in the diagram. Find $\frac{L_1}{L_3}$



A. 2

B. 4

C. ½

D. 1/4

Ans. (C)

JEE MAIN 2025 LIVE PAPER DISCUSSION

#Q. A solenoid of radius 10 cm carrying current 0.29 A and having total 200 turns. If magnetic field inside solenoid is 2.9×10^{-4}T. Find length of solenoid.

A. 6π cm

B. 8π cm

C. 4.5 cm

D. 16 cm

Ans. (B)

#Q. Three identical particles, each of mass m move under the influence of mutual attraction forces. Initially the are on the vertices of an equipotential triangle of side ‘a’ and have equal speed v directed towards the adjacent particles as shown. the net angular momentum about the centre just before collision is :

(A) $\frac{3mva}{2}$

(B) $\frac{2}{3}mva$

(C) $\frac{\sqrt{3}}{2}mva$

(D) $\frac{2}{\sqrt{3}}mva$

Ans. (C)

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#Q. Match the physical quantities with their corresponding dimensions :

	Column-I		Column-II
(A)	Young's modulus	(i)	$[AL^2]$
(B)	Magnetic moment	(ii)	$[ML^2T^{-2}A^{-1}]$
(C)	Magnetic flux	(iii)	$[AL^{-1}]$
(D)	Magnetic Intensity	(iv)	$[ML^{-1}T^{-2}]$

A. A-(iv), B-(i), C-(ii), D-(iii)

B. A-(iv), B-(ii), C-(i), D-(iii)

C. A-(iii), B-(i), C-(ii), D-(iv)

D. A-(iii), B-(ii), C-(i), D-(iv)

Ans. (A)

#Q. A physical quantity Q is gives as $Q = \frac{ad^4}{cd}$, if the percentage error is a, b, c and d are 2%, 1%, 2% and 1%, the error in Q will be

A 5%

B 15%

C 9%

D 2%

Ans. (C)

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#Q. Assertion : On increasing the pressure, the volume decrease is more in an isothermal process than in an adiabatic process.

Reason : Adiabatic process is given by PV^{γ}.

A Assertion is correct and Reason is false

B Assertion is correct and Reason is correct

C Assertion is false and Reason is correct

D Assertion is false and Reason is false

Ans. (B)

#Q. Two planet A and B are revolving around a massive star such that $r_A = 2r_B$ and $m_A = 4\sqrt{3}\, m_B$. Find ratio of angular momentum of planet B to planet A.

Ans. $4\sqrt{6}$

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#Q. A capacitor C_1 = 6μF, initially charged with a cell of emf 5 V is disconnected and connected to another capacitor C_2 = 12 μF which is initially neutral. The charges on C_1 and C_2 after connection are :

A 0μc, 30 μC

B 10μc, 20 μC

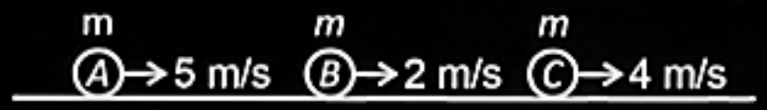
C 20μc, 10 μC

D 30μc, 0 μC

Ans. (B)

JEE MAIN 2025 LIVE PAPER DISCUSSION

#Q. Three particles of same mass are moving a shown. (all collisions are elastic)



S_1 : After all collisions velocities are 4 m/s, 2 m/s and 5 m/s.

S_2 : Velocities are get interchanged in elastic collision of same mass.

A S_1 : Correct, S_2 : Correct

B S_1 : Incorrect, S_2 : Correct

C S_1 : Incorrect, S_2 : Incorrect

D S_1 : Correct, S_2 : Incorrect

Ans. (B)

JEE MAIN 2025 LIVE PAPER DISCUSSION

#Q. An electromagnetic wave propagates in +x-direction. Then, electric field and magnetic field are directed along :

A X, Y

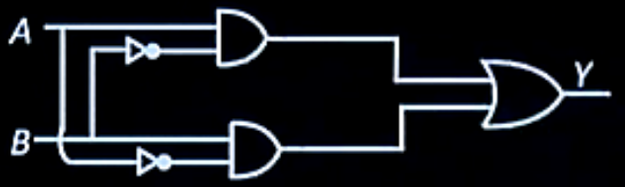
B Y, Z

C Z, Y

D Y, X

Ans. (B)

#Q. The truth table for the logical circuit shown below is :



A

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

B

A	B	Y
0	0	0
0	1	1
1	0	0
1	1	0

C

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

D

A	B	Y
0	0	1
0	1	0
1	0	0
1	1	1

Ans. (B)

#Q. Two particles of same mass are performing SHM vertically with two different springs of spring constants K_1 and K_2. If amplitude of both is same. Find ratio of the maximum speed of two particles.

A $\sqrt{\frac{K_1}{K_2}}$

B $\sqrt{K_2K_1}$

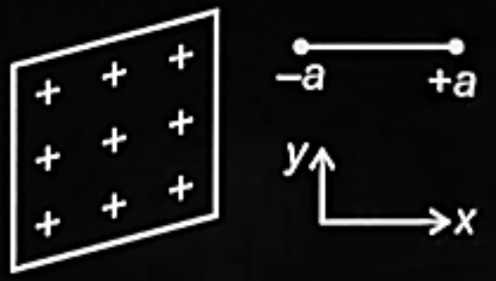
C $\sqrt{\frac{K_2}{K_1}}$

D $\sqrt{\frac{K_1+K_2}{K_1+K_2}}$

Ans. (A)

#Q. A dipole is placed such that its axis is perpendicular to the infinite charged sheet. Select the correct options :

(a) $T_{net} = 0, F_{net}$ is along –ve x-axis
(b) $T_{net} = 0, U = \min$
(c) $T_{net} = 0, F_{net} = 0$
(d) T_{net} and U both are maximum



A (a), (b), (c) and (d)

B (b) and (c)

C (a) and (c)

D (b) and (d)

Ans. (B)

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#Q. A cup of coffee take a time 't' to cool from 90°C to 80°C in a surrounding of 20°C. If a similar cup of coffee is cooled from 80°C to 60°C in the same surrounding, it takes a time :

A. $\frac{13t}{5}$

B. $\frac{5t}{13}$

C. $\frac{12t}{5}$

D. $2t$

Ans. (A)

#Q. For a certain mechanical system, the rate of acceleration $\frac{dm}{dt}$ is proportional to $\sqrt{v}$, where m is mass, t is time and v is velocity, then the power is proportional to $v^{n/2}$ where is n is _____.

Ans. (5)