



PAPER SOLUTION

From Meerut

JEE MAIN

JAN

SHIFT

24

2nd

2025

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JEE MAIN 2025 LIVE PAPER DISCUSSION

#Q. A solid sphere and hollow sphere rolls down purely equal distances on same inclined plane (starting from rest) in time t_1 and t_2 then

- A** $t_1 > t_2$
- B** $t_1 < t_2$
- C** $t_1 = 2t_2$
- D** $t_1 = t_2$

Ans. (B)



JEE MAIN 2025 LIVE PAPER DISCUSSION

#Q. A solid sphere rolls without slipping on a horizontal plane. What is ratio of translational kinetic energy to the rotational kinetic energy of the sphere.

- A** $4/3$
- B** $3/4$
- C** $2/5$
- D** $5/2$

Ans. (D)



JEE MAIN 2025 LIVE PAPER DISCUSSION

#Q. If the acceleration due to gravity on the surface of earth is g , then acceleration due to gravity on a planet whose diameter is $1/3$ of that earth and same mass as that of earth of $g' = ng$, where n is _____

Ans. (9)



JEE MAIN 2025 LIVE PAPER DISCUSSION

#Q. If E , p , m and c denote the energy, linear momentum, mass and speed of light, then the equation representing the correct relation could be

- A** $E^2 = p^2c^2 + m^2c^4$
- B** $E^2 = pc^2 + m^2c^4$
- C** $E = p^2c^2 + m^2c^4$
- D** $E^2 = pc^2 + m^2c^4$

Ans. (A)



JEE MAIN 2025 LIVE PAPER DISCUSSION

#Q. Temperature of a body reduced from 40° to 24°C in 4 minutes in surrounding of 16°C . What is the temperature of body after further 4 minutes ?

- A** 20°C
- B** 22°C
- C** $56/3^{\circ}\text{C}$
- D** 17°C

Ans. (C)



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#Q. The position of a particle varies with time as $\hat{r} = (5t^2\hat{i} - 5t)\text{m}$. The magnitude and direction of velocity at $t = \frac{1}{2}$ s is :

- A** $5\sqrt{2}$ m/s, -45° with +X axis
- B** 5 m/s, -45° with +X axis
- C** $5\sqrt{2}$ m/s, -45° with +Y axis
- D** 5 m/s, $+45^\circ$ with +Y axis

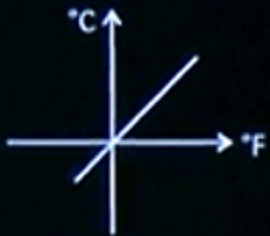
Ans. (A)



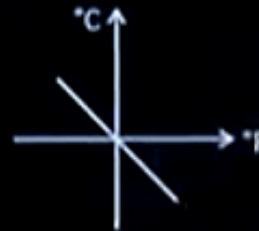
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#Q. Which of the following graph correctly represents the relation between Celsius ($^{\circ}\text{C}$) and Fahrenheit ($^{\circ}\text{F}$) ?

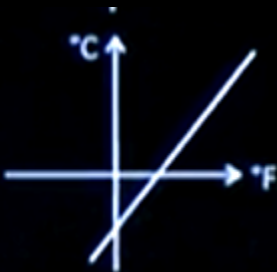
A



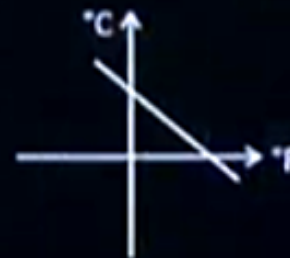
B



C



D



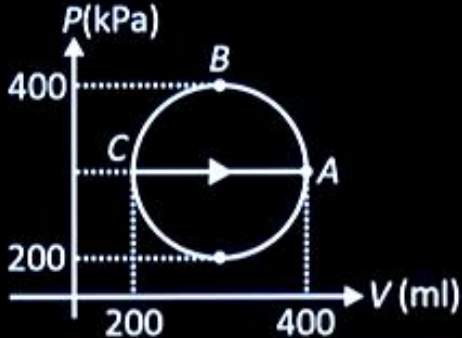
Ans. (C)



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#Q. In given thermodynamic process (Circular in nature), find magnitude of work done by the gas in cycle ABCA :

- A** 2π
- B** 10π
- C** 5π
- D** zero



Ans. (C)



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#Q. Arrange the following in order of decreasing wavelength.

a : Microwave

b : Ultraviolet

c : Infrared

d : X-rays

A $a > b > c > d$

B $d > c > b > a$

C $a > c > b > d$

D $c > a > b > d$

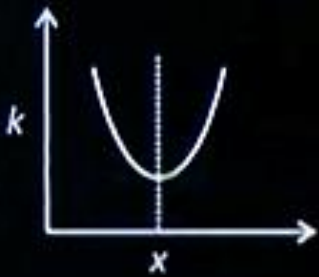
Ans. (C)



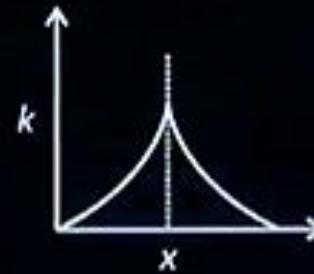
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#Q. A particle oscillates along x-axis according to law $x = x_0 \sin^2 (t/2)$ where $x_0 = 1$. Variation of kinetic energy (k) with position (x) is given by graph

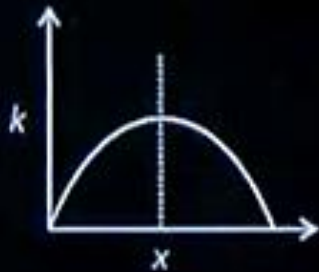
A



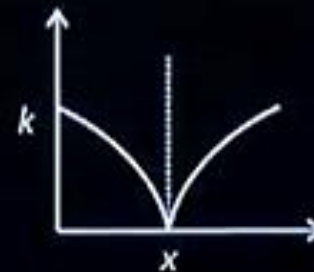
B



C



D

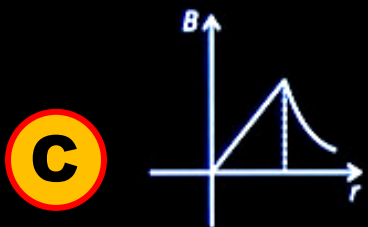
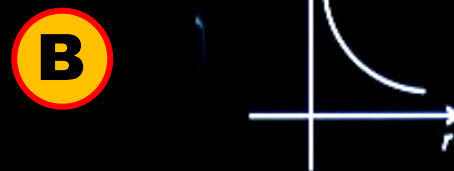
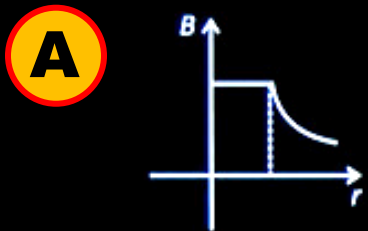


Ans. (C)



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#Q. There is a line solid cylinder carrying current along the axis with uniform current density. Variation of magnetic field (B) with radial distance from axis of cylinder (r) is best denoted by :



Ans. (C)



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#Q. There is conical pendulum of mass m and length l making 60° with vertical. Then tension in thread is :

- A** mg
- B** $mg/2$
- C** $2mg$
- D** $3mg$

Ans. (C)



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#Q. There are two identical conducting spheres placed at certain distance l . One of them is carrying charge of 4×10^{-8} C and the other is neutral. Now both are connected using a conducting wire and force between them is found to be 9×10^{-3} N, then distance l is :

- A** 4 cm
- B** 4 m
- C** 2 cm
- D** 1 cm

Ans. (C)



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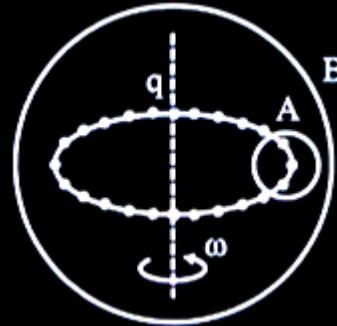
#Q. The excess pressure required to decrease the volume of water sample by 0.2% is $P \times 10^5$ Pa. If the bulk modulus of water is 1.25×10^9 Pa, then the value of P is _____ .

Ans. (25)



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#Q. 'N' charge '+q' each is fixed on ring at equidistant spacing. It is revolving with angular velocity ' ω '. Find the difference in current piercing through the loops A and B.



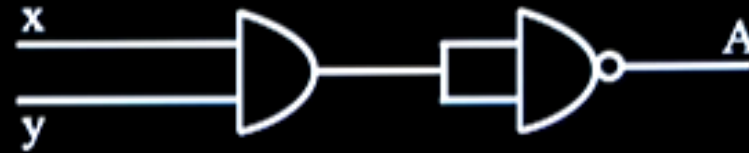
- A** $\frac{Nq\omega}{2\pi}$
- B** $\frac{2Nq\omega}{\pi}$
- C** $\frac{Nq\omega}{\pi}$
- D** $\frac{q\omega}{2N\pi}$

Ans. (A)



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#Q. Find for which option output A is one.



- | | x | y |
|----------|---|---|
| A | 0 | 1 |
| B | 0 | 0 |
| C | 1 | 0 |
| D | 1 | 1 |

Ans. (B)



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#Q. Power of two sources S_1 and S_2 are in ratio 2 : 5 and N_1 photons per sec of wavelength λ_1 from S_1 are emitted. Find the number of photons per second N_2 of wavelength λ_2 emitted from S_2 :

- A** $N_2 = \left(\frac{5\lambda_2}{2\lambda_1}\right) N_1$
- B** $N_2 = \left(\frac{2\lambda_2}{5\lambda_1}\right) N_1$
- C** $N_2 = \left(\frac{5\lambda_1}{2\lambda_2}\right) N_1$
- D** $N_2 = \left(\frac{2\lambda_1}{5\lambda_2}\right) N_1$

Ans. (A)