

JEE Main April 2026
Question Paper With Text Solution
06 April | Shift-1

PHYSICS



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

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**JEE MAIN APRIL 2026 | 06 APRIL SHIFT-1****SECTION - A**

Question ID : 6952782161

26. The density ρ of a uniform cylinder is determined by measuring its mass m , length l and diameter d . The measured values of m , l and d are 97.42 ± 0.02 g, 8.35 ± 0.05 mm and 20.20 ± 0.02 mm, respectively. Calculated percentage fractional error in ρ is _____.
- (1) 0.63% (2) 0.82% (3) 0.72% (4) 0.25%

Ans. (2)**Sol.**

Question ID : 6952782162

27. The potential energy of a particle changes with distance x from a fixed origin as $V = \frac{A\sqrt{x}}{x+B}$, where A and B are constant with appropriate dimensions. The dimensions of AB are _____.
- (1) $[M^1L^{5/2}T^{-2}]$ (2) $[M^{3/2}L^{5/2}T^{-2}]$ (3) $[M^1L^2T^{-2}]$ (4) $[M^1L^{7/2}T^{-2}]$

Ans. (4)**Sol.**

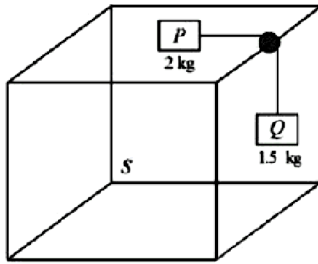
Question ID : 6952782163

28. The rain drop of mass 1 g, starts with zero velocity from a height of 1 km. It hits the ground with a speed of 5 m/s. The work done by the unknown resistive force is _____ J.
- (take $g = 10$ m/s²)
- (1) - 8.75 (2) - 8.35 (3) - 9.55 (4) - 9.98

Ans. (4)**Sol.**

Question ID : 6952782164

29. Two blocks (P and Q) with respectively masses 2 kg and 1.5 kg are joined by a massless thread. These blocks are mounted on a frictionless pulley which is fixed on the edge of a cube (S), as shown in the figure below. Block P is positioned on the top surface which has no friction and block Q is in contact with side-surface, having coefficient friction μ . The cube (S) moves towards the right with acceleration of $\frac{g}{2}$, where g is gravitational acceleration. During this movement the block P and Q remain stationary. The value of μ is _____.
- (take $g = 10$ m/s²)



- (1) 0.3 (2) 0.67 (3) 1 (4) 0.5

Ans. (2)

Sol.

Question ID : 6952782165

30. A lift of mass 1600 kg is supported by thick iron wire. If the maximum stress which the wire can withstand is $4 \times 10^8 \text{ N/m}^2$ and its radius is 4 mm, then maximum acceleration the lift can take is _____ m/s^2 .

(take $g = 10 \text{ m/s}^2$ and $\pi = 3.14$)

- (1) 2.56 (2) 3.89 (3) 4.32 (4) 5.16

Ans. (1)

Sol.

Question ID : 6952782166

31. A solid sphere of radius 4 cm and mass 5 kg is rotating (rotation axis is passing through the centre of the sphere) with an angular velocity of 1200 rpm. It is brought to rest in 10 s by applying a constant torque. The torque applied and the number of rotations it made before it comes to rest are _____ and _____ respectively.

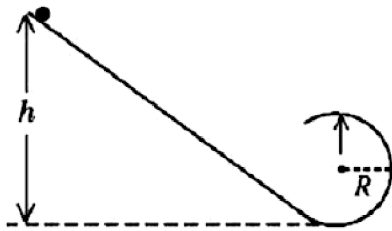
- (1) $0.128 \pi \text{ Nm}$, 100 (2) $0.128 \pi \text{ Nm}$, 50 (3) $0.128 \pi \text{ Nm}$, 50 (4) $0.0128 \pi \text{ Nm}$, 100

Ans. (4)

Sol.

Question ID : 6952782167

32. A smooth inclined plane ends in a vertical circular loop, as shown in the figure. A small body is released from height h as shown. If the body exerts a force of three times its weight on the plane at the highest point of circle then the height $h = \alpha R$. The value of α is _____.



(1) 2

(2) 4

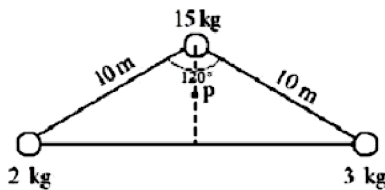
(3) 3

(4) 6

Ans. (2)**Sol.**

Question ID : 6952782168

33. The position of center of mass of three masses 2 kg, 3 kg and 15 kg placed with respect to mid point (p) of normal bisector, as shown in the figure is _____.

(1) $\left(\frac{\sqrt{3}}{4}, 1.25\right)$ (2) $\left(\frac{\sqrt{3}}{4}, 1.0\right)$

(3) (0, 0)

(4) (1.25, 0)

Ans. (1)**Sol.**

Question ID : 6952782169

34. The two wires A and B of equal cross-section but of different materials are joined together. The ratio of Young's modulus of wire A and wire B is 20/11. When the joined wire is kept under certain tension the elongations in the wires A and B are equal. If the length of wire A is 2.2 m, then the length of wire B is _____ m.

(1) 1.1

(2) 2.22

(3) 1.21

(4) 4.44

Ans. (3)**Sol.**

Question ID : 6952782170

35. Two closed vessels of same volume are joined through a narrow tube and both vessels are filled with air of pressure 90 kPa and temperature 400 K. Keeping the temperature of one vessel constant at 400 K the second vessel temperature is raised to 500 K. The final pressure in the vessels is _____ kPa.

(1) 100

(2) 120

(3) 90

(4) 105

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**Ans.** (1)**Sol.**

Question ID : 6952782171

36. In interference experiment the path difference between two interfering waves at a point A on the screen is $\lambda/3$, where λ is the wavelength of these waves, and at another point B the path difference is $\lambda/6$. The ratio of intensities at points A and B is _____.

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

Ans. (3)**Sol.**

Question ID : 6952782172

37. A particle is executing simple harmonic motion. Its amplitude is A and time period is 5 sec. The time required by it to move from $x = A$ to $x = \frac{A}{\sqrt{2}}$ is _____ sec.

- (1) $1/4$ (2) $5/4$ (3) $5/8$ (4) $3/8$

Ans. (3)**Sol.**

Question ID : 6952782173

38. A thin half ring of radius 35 cm is uniformly charged with a total charge of Q coulomb. If the magnitude of the electric field at centre of the half ring is 100 V/m, then the value of Q is _____ nC .

($\epsilon_0 = 8.85 \times 10^{-12} \text{ C}^2/\text{Nm}^2$ and $\pi = 3.14$)

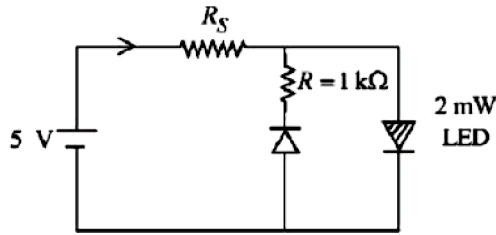
- (1) 2.14 (2) 2.44 (3) 3.25 (4) 0.7

Ans. (1)**Sol.**

Question ID : 6952782174

39. The maximum rated power of the LED is 2 mW and it is used in the circuit with input voltage of 5 V as shown in the figure below. The current through resistance R_s is 0.5 mA.

The minimum value of the resistance of R_s , to ensure that the LED is not damaged is _____ $k\Omega$.



- (1) 6 (2) 2 (3) 4 (4) 5

Ans. (2)

Sol.

Question ID : 6952782175

40. A point light source emits E.M. waves in free space. A detector, placed at a distance of L m, measures the intensity as I_0 . The detector is now shifted to another location on the same spherical surface ensuring the angle between original location and new location as 45° . The measured intensity at new location will be _____.

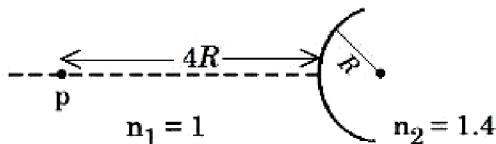
- (1) $\frac{I_0}{4}$ (2) I_0 (3) $\frac{I_0}{\sqrt{2}}$ (4) $\frac{I_0}{2}$

Ans. (2)

Sol.

Question ID : 6952782176

41. A spherical interface lens of radius R separates two media of refractive indices 1 and 1.4 respectively as shown in the figure below. A point source is placed at a distance of $4R$ in front of spherical interface. The magnitude of the magnification of point source image is _____.



- (1) 1.66 (2) 2.33 (3) 2.66 (4) 1.33

Ans. (1)

Sol.

Question ID : 6952782177

42. A small cube of side 1 mm is placed at the centre of a circular loop of radius 10 cm carrying a current of 2 A. The magnetic energy stored inside the cube is $\alpha \times 10^{-14}$ J. The value of α is _____.



$$(\mu_0 = 4\pi \times 10^{-7} \text{ Tm / A}, \pi = 3.14)$$

(1) 6.28

(2) 6.28×10^{-6}

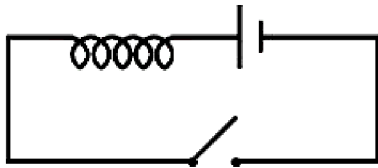
(3) 628

(4) 6.28×10^{-4}

Ans. (1)**Sol.**

Question ID : 6952782178

43. An inductor of inductance 10 mH having resistance of 100Ω is connected to battery of E.M.F. 1.0 V through a switch as shown in the figure below. After switch is closed, the ratio of instantaneous voltages across the inductor when the current passing through it is 2 mA and 4 mA is _____.



(1) 4/3

(2) 3/4

(3) 5/3

(4) 3/5

Ans. (1)**Sol.**

Question ID : 6952782179

44. The ratio of momentum of the photons of the 1st and 2nd line of Balmer series of Hydrogen atoms is $\alpha\beta$. The possible values of α and β are:-

(1) 27 and 20

(2) 3 and 16

(3) 5 and 36

(4) 20 and 27

Ans. (4)**Sol.**

Question ID : 6952782180

45. A LCR series circuit driven with $E_{\text{rms}} = 90 \text{ V}$ at frequency $f_d = 30 \text{ Hz}$ has resistance $R = 80 \Omega$, an inductance with inductive reactance $X_L = 20.0 \Omega$ and capacitance with capacitive reactance $X_C = 80.0 \Omega$. The power factor of the circuit is _____.

(1) 0.8

(2) 0.64

(3) 0.9

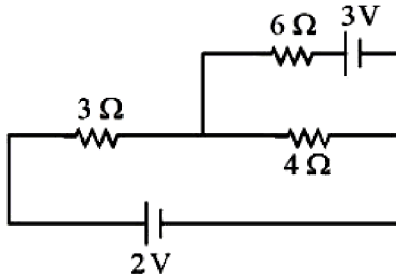
(4) 0.5

Ans. (1)**Sol.**

Question ID : 6952782181

46. Refer to the circuit diagram given below. The heat generated across the 6Ω resistance in 100 second is

$$\frac{\alpha}{100} \text{ J}. \text{ The value of } \alpha \text{ is } \underline{\hspace{2cm}}. \text{ (Nearest integer)}$$

**Ans.** (3477)**Sol.**

Question ID : 6952782182

47. An unpolarized light of intensity I_0 passes through polarizer and then through a certain optically active solution and finally it goes to analyser. If the angle between analyser and polariser is 0° and intensity of light emerged from analyser is $\frac{3}{8}I_0$, the angle of rotation of the light by the solution with respect to analyser is _____ degrees.

Ans. (30)**Sol.**

Question ID : 6952782183

48. The energy released when $\frac{7}{17.13}$ kg of ${}^7_3\text{Li}$ is converted into ${}^4_2\text{He}$ by proton bombardment is $\alpha \times 10^{32}$ eV. The value of α is _____. (Nearest integer)

(Mass of ${}^7_3\text{Li} = 7.0183\text{u}$, mass of ${}^4_2\text{He} = 4.004\text{u}$, mass of proton = 1.008u and $1\text{u} = 931\text{MeV}/c^2$ and Avogadro number = 6.0×10^{23})

Ans. (6)**Sol.**

Question ID : 6952782184

49. A three coulomb charge moves from the point $(0, -2, -5)$ to the point $(5, 1, 2)$ in an electric field expressed as $\vec{E} = 2x\hat{i} + 3y^2\hat{j} + 4z\hat{k}$ N/C. The work done in moving the charge is _____ J.

Ans. (186)**Sol.**



Question ID : 6952782185

50. A certain gas is isothermally compressed to $\left(\frac{1}{3}\right)^{\text{rd}}$ of its initial volume ($V_0 = 3$ litre) by applying required pressure. If the bulk modulus of the gas is $3 \times 10^5 \text{ N/m}^2$, the magnitude of work done on the gas is _____ J.

Ans. (989)**Sol.**