

JEE-MAIN EXAMINATION – APRIL 2026**(HELD ON MONDAY 06th APRIL 2026)****TIME : 3:00 PM TO 6:00 PM****PHYSICS**

26. The percentage error in the calculated volume of a sphere, if there is 2% error in its diameter measurement, is ____.

- (1) 1 (2) 2
(3) 6 (4) 8

27. Match List-I with List-II.

List-I List-II

- A. Boltzmann constant I. $[M^{-1}L^3T^{-2}]$
B. Stefan's constant II. $[ML^2T^{-1}]$
C. Planck's constant III. $[ML^2T^{-2}K^{-1}]$
D. Gravitational constant IV. $[ML^0T^{-3}K^{-4}]$

- (1) A-I, B-II, C-III, D-IV (2) A-IV, B-III, C-II, D-I
(3) A-III, B-IV, C-II, D-I (4) A-II, B-I, C-IV, D-III

28. A solid sphere (A) of mass, 5m and spherical shell (B) of mass m, both having same radius, are placed on a rough surface. When a force of same magnitude is applied tangentially at the highest points of A and B, they start rolling without slipping with an acceleration of a_A and a_B , respectively. The ratio of a_A and a_B is ____.

- (1) 5 : 21 (2) 6 : 10
(3) 21 : 25 (4) 1 : 5

29. A body of mass 1 kg moves along a straight line with a velocity $v = 2x^2$. The work done by the body during displacement from $x = 0$ to 5 m is ____ J.

- (1) 0 (2) 250
(3) 1250 (4) 1000

30. A cylinder with adiabatic walls is closed at both ends and is divided into two compartments by a frictionless adiabatic piston. Ideal gas is filled in both (left and right) the compartments at same P, V, T. Heating is started from left side until pressure changes to $27P/8$. If initial volume of each compartment was 9 litres then the final volume in right-hand side compartment is ____ litres. (For this ideal gas $C_P/C_V = 1.5$)

- (1) 3 (2) 4
(3) 14 (4) 9

31. For an electromagnetic wave propagating through vacuum, k , E and ω represent propagation vector, electric field and angular frequency, respectively. The magnetic field associated with this wave is represented by:

- (1) $E \times k / \omega$ (2) $k \times E / \omega$
 (3) $\omega(E \times k)$ (4) $\omega(k \times E)$

32. Two identical bodies A and B of equal masses have initial velocities $v = 4\hat{i}$ m/s and $v_2 = 4\hat{j}$ m/s respectively. The body A has acceleration $a_1 = 6\hat{i} + 6\hat{j}$ m/s², while the acceleration of the other body B is zero. The centre of mass of the two bodies moves in _____ path.

- (1) circular (2) parabolic
 (3) straight line (4) elliptical

33. Figure represents the extension (Δl) of a wire of length 1 metre, suspended from the ceiling of the room at one end with load W connected to the other end. If the cross-sectional area of the wire is 10^{-5} m², then the Young's modulus of the wire is _____ N/m².

- (1) 1.0×10^{11} (2) 2.0×10^{10}
 (3) 1.0×10^{10} (4) 2.0×10^{11}

34. A cylindrical vessel of 40 cm radius is completely filled with water and its capacity is 528 dm³ (dm: decimeter). The vessel is placed on a solid block of exactly same height as vessel. If a small hole is made at 70 cm below the top of water level, then horizontal range of water falling on the ground in the beginning is _____ cm.

- (1) $120\sqrt{2}$ (2) $140\sqrt{2}$
 (3) $140\sqrt{3}$ (4) $120\sqrt{3}$

35. If 2 mole of an ideal monoatomic gas at temperature T , is mixed with 6 mole of another ideal monoatomic gas at temperature $2T$ then the temperature of mixture is:

- (1) $5T/2$ (2) $5T/4$
 (3) $7T/2$ (4) $7T/4$

36. A spring stretches by 2 mm when it is loaded with a mass of 200 g. From equilibrium position the mass is further pulled down by 2 mm and released. The frequency associated with the system and maximum energy in the spring are _____ Hz and _____ J, respectively. (Take $g = 10$ m/s²)

- (1) $5\sqrt{50}/\pi$ and 8×10^{-3} (2) $5\sqrt{50}/\pi$ and 8
 (3) $10\sqrt{50}$ and 2×10^{-3} (4) $5\sqrt{50}/\pi$ and 16×10^{-3}

37. The electric potential as a function of x , y is given by $V = 5(x^2 - y^2)$ V. The electric field at a point (2, 3) m is _____ V/m.

- (1) $(-20\hat{i} + 30\hat{j})$ (2) $(20\hat{i} - 30\hat{j})$
 (3) $(20\hat{i} + 45\hat{j})$ (4) $(-4\hat{i} + 6\hat{j})$

38. A current of 30 A each flows in opposite directions in two conducting wires, placed parallel to each other at a distance of 8 cm. The magnetic field at the mid point between the two wires is _____ μ T. ($\mu_0/4\pi = 10^{-7}$ N/A²)

- (1) 30 (2) 300
 (3) 150 (4) 0.1

39. A square loop of side 2 cm is placed in a time varying magnetic field with magnitude as $B = 0.4 \sin(300t)$ Tesla. The normal to the plane of loop makes an angle of 60° with the field. The maximum induced emf produced in the loop is ____ mV.

- (1) 12 (2) 18
(3) 21 (4) 24

40. A sphere of capacitance 100 pF is charged to a potential of 100 V. Another identical undercharged metal sphere is brought in contact with the charged sphere, then the change in the total energy stored on these spheres, when they touch is $\alpha \times 10^{-7}$ J. The value of α is _____. (Combined capacitance of spheres is 200 pF).

- (1) 5 (2) 5/2
(3) 7/2 (4) 9/2

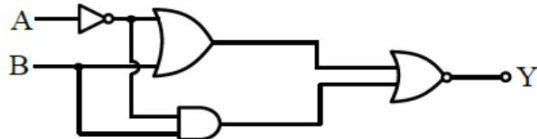
41. The energy released if hydrogen atoms are combined to form ${}^4_2\text{He}$ is _____. (Take binding energies per nucleon of ${}^2_1\text{H}$ and ${}^4_2\text{He}$ as 1.1 MeV and 7.2 MeV, respectively).

- (1) 6.1 (2) 24.4
(3) 26.6 (4) 5

42. Angle of minimum deviation is equal to the half of the angle of prism and is an equilateral prism. The refractive index of the prism is _____.

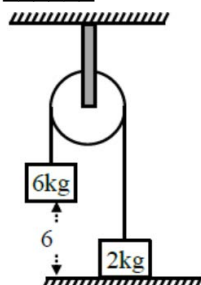
- (1) 1.5 (2) $\sqrt{3}$
(3) $\sqrt{2}$ (4) 1.65

43. Refer to the logic circuit given below. For two inputs ($A = 1, B = 1$) and ($A = 0, B = 1$), output (Y) will be _____.



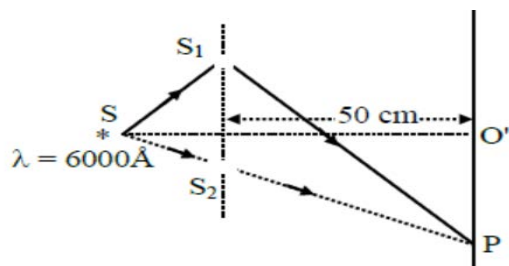
- (1) 1, 0 respectively (2) 0, 1 respectively
(3) 0, 0 respectively (4) 1, 1 respectively
(5) 0,0

44. The velocity at which 6 kg mass (shown in figure) strikes the ground when it is released from a height of 6 m above the ground is ____ m/s. Assume pulley is massless and string is light and inextensible (Take $g = 10 \text{ m/s}^2$).



- (1) 7.74 (2) 7.20
(3) 6.55 (4) 4.50

45. In a Young double slit experiment, the wavelength of incident light is $6000 \text{ \AA}$, the separation between slits S_1 and S_2 is 5 cm and the distance between slits plane and screen is 50 cm , as shown in the figure below. If the resultant intensity at P is equal to the intensity due to individual slits, the path difference between interfering waves is _____ $\text{\AA}$.



- | | |
|----------|----------|
| (1) 4000 | (2) 3000 |
| (3) 2000 | (4) 1000 |

46. A block takes t time to slide down a plane inclined at 45° to the horizontal. If the surface is made smooth (frictionless), the block takes time $t/2$ to slide down the plane. The coefficient of friction between the block and the inclined plane is $(\alpha/100)$. The value of α is _____.

Answer: _____

47. The de Broglie wavelength for an electron accelerated through the potential difference V_1 volt is λ_1 . When the potential difference is changed to V_2 volt, the associated de Broglie wavelength is increased by 50%. If $(V_1/V_2) = (9/\alpha)$, then the value of α is _____.

Answer: _____

48. A moving coil of a galvanometer when shunted with 2Ω resistance gives a full scale deflection for a current of 500 mA . When a resistance of 470Ω is connected in series it gives a full scale deflection for 10 V potential applied on it. The value of resistance of galvanometer coil is _____ Ω .

Answer: _____

49. Two cells of emfs 1 V and 2 V and internal resistance 2Ω and 1Ω , respectively connected in parallel, gave current of 1 A through an external resistance. If the polarity of one cell is reversed, then value of current through the external resistance will be $\alpha/5 \text{ A}$. The value of α is _____.

Answer: _____

50. A concave mirror of focal length 10 cm forms an image which is double the size of object when the object is placed at two different positions. The distance between the two positions of the object is _____ cm .

Answer: _____