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JEE (MAIN) 2026

MEMORY BASED QUESTIONS & TEXT SOLUTION

SHIFT-2

DATE & DAY: 24th January 2026 & Saturday

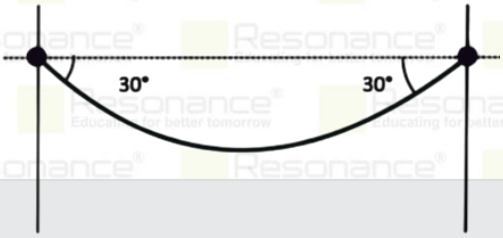
PAPER-1

Duration: 3 Hrs.
Time: 03:00 PM – 06:00 PM

SUBJECT: PHYSICS

PART : PHYSICS

1. A uniform rope is supported by two level pin support as shown in the figure. Mass of the rope is m. Find the tension at mid-point.



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

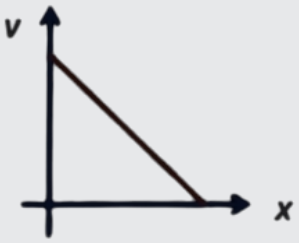
Ans. (3)

2. Find force on charge $q = 1\ \mu C$ as due to uniformly charged rod having charge to $2\mu C$ as shown in the figure.

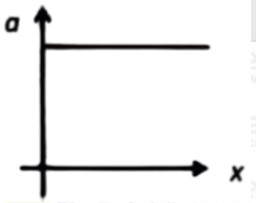
(1) 12 N (2) 7.5 N (3) 18 N (4) 6 N

Ans. (2)

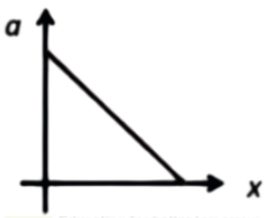
3. Velocity of particle varies with position as shown in the below graph. Find the correct variation of acceleration with position.



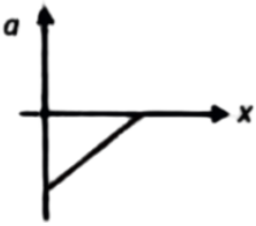
(1)



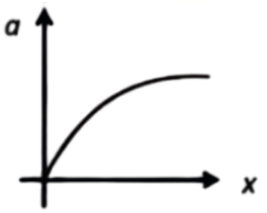
(2)



(3)

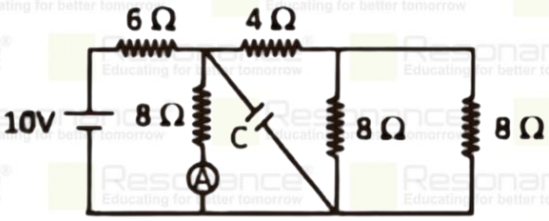


(4)



Ans. (3)

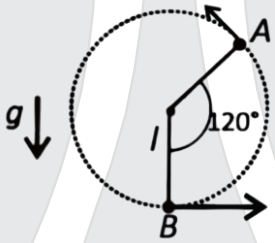
4. Find current through ammeter (in A), in steady state



(1) 0.5 (2) 1 (3)0.75 (4) 2

Ans. (1)

5. A particle attached to an ideal string is projected from position B (lowest position). At position A , tension in string becomes zero. Find speed in string at B.



(1)$\sqrt{2gl}$ (2)$\sqrt{\frac{3gl}{2}}$ (3)$\sqrt{5gl}$ (4)$\sqrt{\frac{7gl}{2}}$

Ans. (4)

6. The distance between object and a three times magnified real image in a concave mirror is 40 cm , Then the focal length of the mirror is.

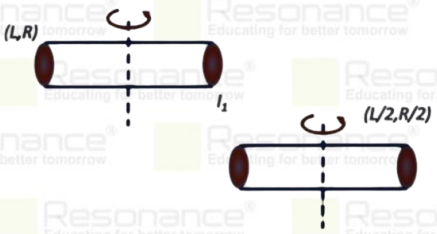
Ans. (–15 cm)

7. Radius of a soap bubble is charged from 7 cm to 14 cm then the work done in this process is (in μJ) is $(15000 - x)$ find the value of x.$\left(\pi = \frac{22}{7}\right)$ $(T = 0.04\ \text{N/m})$

(1) 256 (2) 225 (3) 196 (4) 216

Ans. (4)

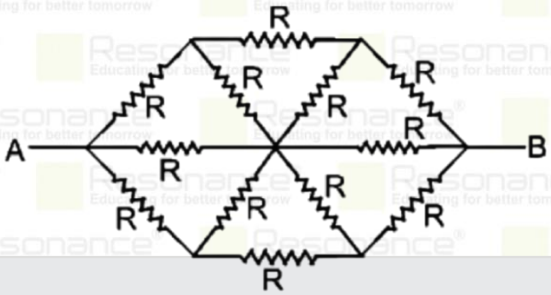
8. For a uniform cylinder of length L and radius R the moment of inertia is I_1. Now for similar situation but length $\frac{L}{2}$ and radius $\frac{R}{2}$ moment of inertia is I_2. Find I_1/I_2.



(1) 1/4 (2) 32 (3) 8 (4) 16

Ans. (2)

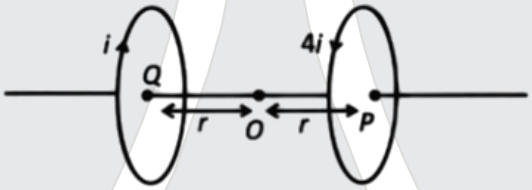
9. Find the equivalent resistance between A & B of the resistor's network. Each value of the resistor is R.



(1) $\frac{4}{3}R$ (2) $\frac{14}{19}R$ (3) $\frac{4}{5}R$ (4) $\frac{3}{4}R$

Ans. (3)

10. Two identical loops are placed coaxially as shown. Radius of both loops is r. Find magnetic field at O.



(1) $\frac{3\mu_0 i}{4\sqrt{2}r}$ towards Q (2) $\frac{\mu_0 i}{4\sqrt{2}r}$ towards P (3) $\frac{3\mu_0 i}{4\sqrt{2}r}$ towards P (4) $\frac{\mu_0 i}{4\sqrt{2}r}$ towards Q

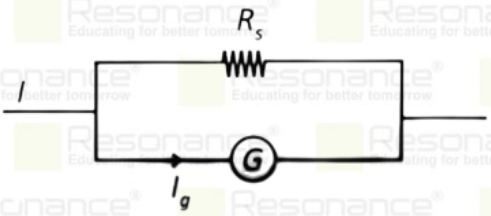
Ans. (3)

11. Distance between an object and its image formed by a lens is 30 cm with magnification $m = 3$. Find the focal length of lens (in cm)

(1) 22.5 cm (2) 4 cm (3) 11.25 cm (4) 15 cm

Ans. (1)

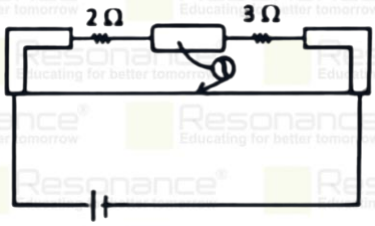
12. A galvanometer of 100Ω can give full scale deflection for $I_g = 1$ mA. Find the value of shunt resistance R_s to get the 4 mA range ammeter.



(1) $\frac{21}{2}\Omega$ (2) $10\,\Omega$ (3) $\frac{100}{3}\Omega$ (4) $\frac{25}{2}\Omega$

Ans. (3)

13. In meter bridge given below, when $X\Omega$ of resistor is connected in parallel to 3 Ω , null point shifts by 10 cm . Find x



(1) 4Ω (2) 2Ω (3) 6Ω (4) 8Ω

Ans. (3)

14. A cubical block of density $600\ \text{kg/m}^3$ is floating in a liquid of density $900\ \text{kg/m}^3$. The height of cube immersed in liquid is (Cube side $= 10$ cm)

(1) 6.67 cm (2) 10 cm (3) 5 cm (4) 7.2 cm

Ans. (1)

15. In a Vernier caliper 50 vernier scale dimension coincides with 48 main scale dimensions. If one main scale dimension is 1 mm then the least count of the measurement is

(1) 0.004 cm (2) 0.04 cm (3) 0.02 cm (4) 0.002 cm

Ans. (1)

16. Stopping potential for a photoelectric experiment is $v_0 = 3.2$ V for wavelength λ. If wavelength is doubled, the stopping potential becomes $v_0' = 0.7$ V. Find the wavelength λ.

(1) 80 nm (2) 410 nm (3) 248 nm (4) 516 nm

Ans. (3)

17. The object and image distances from lens are recorded by student as $(u, v) - P_1(30,60), P_2(30,12), P_3(20,60)\&P_4(-25,100)$. (Values are magnitudes of distances with sign). If power of lens is 5D. Which Readings is/are correct?

(1) P_1, P_2 (2) P_1, P_4 (3) P_2, P_3 (4) P_1, P_3

Ans. (2)

18. If $K_1 > K_2$ which order of C_{eq} for the 3 given configuration is correct.

(1) $C_1 > C_2 > C_3$ (2) $C_3 > C_2 > C_1$ (3) $C_2 > C_3 > C_1$ (4) $C_1 > C_3 > C_2$

Ans. (4)

19. An ideal gas of molar mass 50 g is given 300 J heat at constant volume. Its temperature changes from $20°C$ to $50°C$. If $C_v = \frac{7}{2}R$ and $R = 8.3$ in SI unit, then mass of gas is (in g) (approx.)

Ans. (17)