



PHYSICS

BOOKS - AIIMS PREVIOUS YEAR PAPERS

AIIMS 2019 26 MAY EVENING SHIFT

Physics

1. 

After switch is closed current drawn from the

battery is :

A. 6A

B. 1.5 A

C. 3A

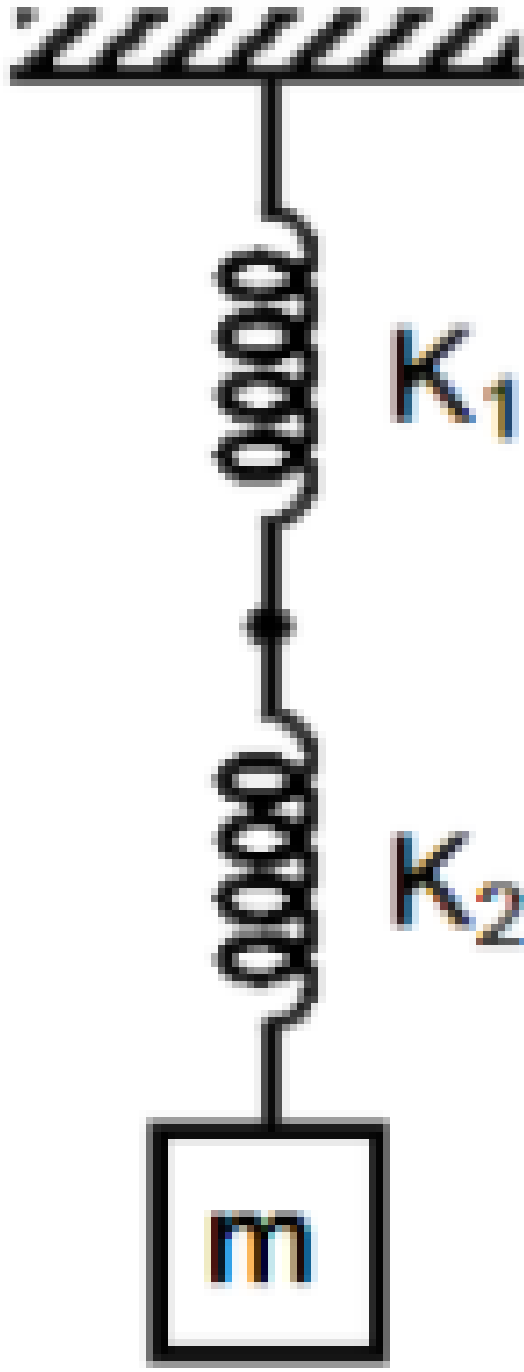
D. 4A

Answer: C



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2. Time period of oscillation for given combination will be :



A. $2\pi \sqrt{\frac{m(K_1 + K_2)}{K_1 K_2}}$

B. $2\pi \sqrt{\frac{m}{K_1 + K_2}}$

C. $2\pi \sqrt{\frac{mK_1 K_2}{K_1 + K_2}}$

D. $2\pi \sqrt{\frac{mK_1}{K_2}}$

Answer: A



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3. For a wire $\frac{R}{l} = \frac{1}{2}$ and length of wire is $l = 5$ cm . If potential difference of 1V is

applied across it current through wire will be :

(R = Resistance)

A. 40 A

B. 4A

C. 25 A

D. 2.5 A

Answer: A



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4. If modulation index $\mu = \frac{1}{2}$ and $V_2 = 2$
then $V_C = ?$

A. 4

B. 2

C. 6

D. 8

Answer: A



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5. A body of mass $5 \times 10^3 \text{ kg}$ moving with speed 2 m/s collides with a body of mass $15 \times 10^3 \text{ kg}$ inelastically & sticks to it. Then loss in K.E. of the system will be :

A. 7.5 kJ

B. 15 kJ

C. 10 kJ

D. 5 kJ

Answer: A



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6. A disc of radius is rotatating with angular frequency 10 rad/sec . A block of mass 2 kg is to be put on the disc frication coefficient between disc and block is $\mu_K = 0.4$, then find the maximum distance from axis where the block can be placed without slidding:

A. 2cm

B. 3cm

C. 4 cm

D. 6cm

Answer: C



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7. Angular magnification of telescope if focal length of objective and eye lenses are 10 cm and 10 mm respectively and tube length is 11cm:

A. 10

B. 5

C. 100

D. 50

Answer: A



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8. An electron is moving in a circle of radius 2m with speed 4 m/s . Find the acceleration of the electron

A. $8m / s^2$

B. $4m / s^2$

C. $16m / s^2$

D. $10m / s^2$

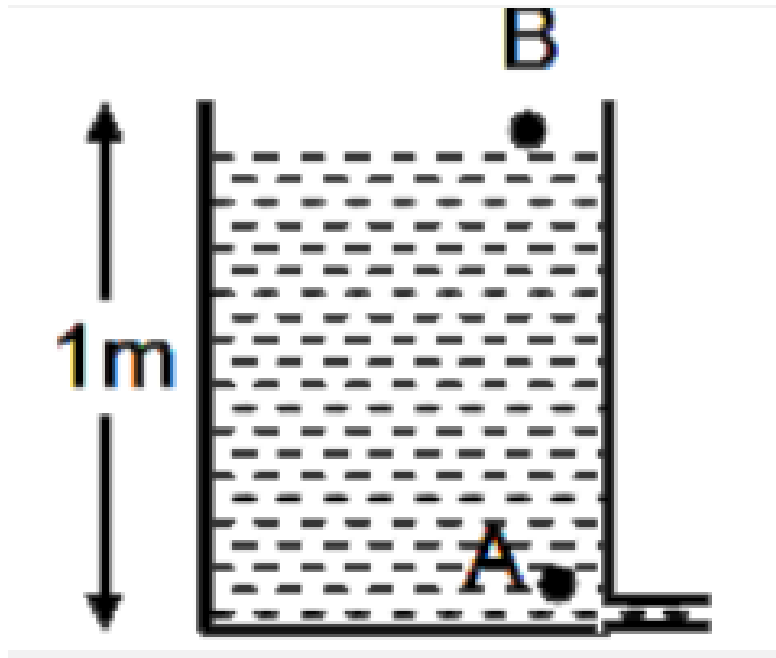
Answer: A



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9. A container of height 10 cm is filled with water. There is hole at bottom. Find the

pressure difference between point A & B .



A. 1000 Pa

B. zero

C. 1 Pa

D. 100 Pa

Answer: A



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10. A coil is placed in y - z plane making an angle of 30° with x -axis . The current through coil is I , and number of turns are N . If a magnetic field of strength ' B ' is applied in positive x -direction, then find the torque experienced by coil: (Radius of coil is R)

$$\left(N = 100, I = 1A, r = 2m, B = \frac{1}{\pi}T \right)$$

A. $100N - m$

B. $50N - m$

C. $200N - m$

D. $150N - m$

Answer: C



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11. In YDSE $a = 2mm$, $D = 2m$, $\lambda = 500 \text{ mm}$.

Find distance of point on screen from central

maxima where intensity becomes 50% of
central maxima

A. $1000\mu m$

B. $500\mu m$

C. $250\mu m$

D. $125\mu m$

Answer: D



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12. A sample which has half life of 10^{33} year . If initial number of nuclei of the sample is 26×10^{24} . Then find out of the number of nuclei decayed in 1 year.

A. 1.82×10^{-7}

B. 182×10^{-7}

C. 18.2×10^{-7}

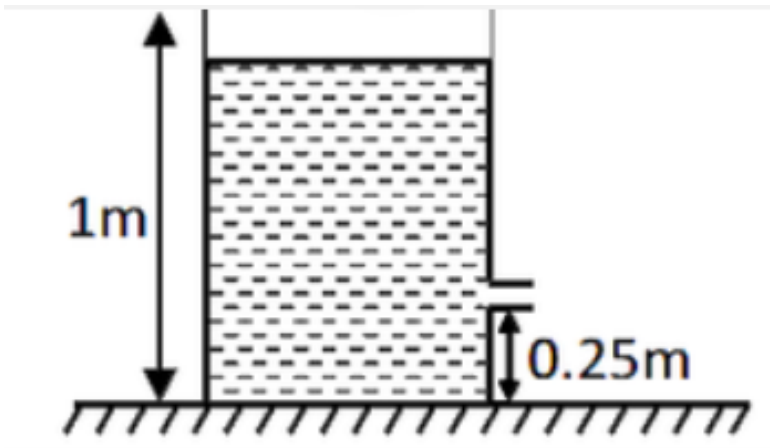
D. 1820×10^{-7}

Answer: C



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13. If a small orifice is made at a height of 0.25 m from the ground, the horizontal range of water stream will be : -



A. 46.5cm

B. 56.6cm

C. 76.6cm

D. 86.6cm

Answer: D



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14. A capacitor is connected to a battery of voltage V . Now a di-electric slab of di-electric constant k is completely inserted between the plates, then the final charge on the capacitor will be : (If initial charge is q_0)

A. $\frac{\epsilon_0 A}{d} V$

B. $\frac{k\epsilon_0 A}{d} V$

C. $\frac{\epsilon_0 A}{kd} A$

D. zero

Answer: B



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15. The unit of magnetic flux is

A. Tesla

B. Gauss

C. Weber

D. Weber / m^2

Answer: C



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16. Calculate the mean % error in five observations :

80.0, 80.5, 81.0, 81.5, 82

A. 0.74 %

B. 1.74 %

C. 0.38 %

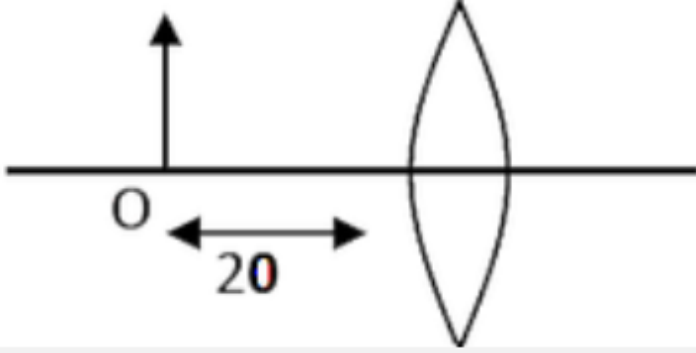
D. 1.38 %

Answer: A



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17. Calculate focal length of given lens if the magnification is -0.5 .



A. 6.66cm

B. 5.44cm

C. 3.88cm

D. 1.38cm

Answer: A



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18. Transformer → ideal

$$\rightarrow E_P = 1000V, I_P = 50A$$

200V → 80 houses

Resistance of secondary coil will be :

A. 2Ω

B. 3Ω

C. 1Ω

D. 4Ω

Answer: C



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19. The magnetic flux has the dimension

A. $MT^{-1}L^2Q^{-1}$

B. $MT^{-2}L^3Q^{-1}$

C. $MT^{-1}L^{-1}Q$

D. MTL^2Q

Answer: A



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20. Which state of triply ionised Beryllium (Be^{+++}) the same orbital radius as that of the ground state hydrogen ?

A. 1

B. 2

C. 3

D. 4

Answer: A



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21. In LCR series circuit source voltage is 120 volt and voltage in inductor 50 volt and resistance is 40 volt then determine voltage in capacitor.

A. $V_C = 10(5 - 8\sqrt{2})$

B. $V_C = 10(5 + 8\sqrt{2})$

C. $V_C = 20(5 + 8\sqrt{2})$

D. $V_C = 10(5 + 7\sqrt{2})$

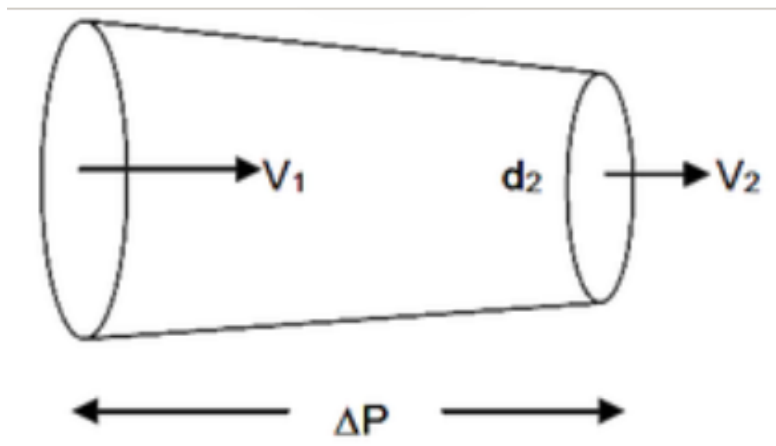
Answer: B



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22. Determine the pressure difference in tube of non-uniform cross sectional area as shown in figure $\Delta P = ?$

$$d_1 = 5\text{cm}, V_1 = 4, d_2 = 2\text{cm}, V_2 = ?$$



A. 304200 Pa

B. 304500 Pa

C. 302500 Pa

D. 303500 Pa

Answer: B



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$$23. mx^2 - bx + k = 0$$

Find time after which of the energy will be come half of initial maximum value in damped forced oscillation .

$$\text{A. } t = \frac{m}{b} + \frac{1}{2} \ln 2$$

$$\text{B. } t = \frac{m}{b} \times \frac{2}{3} \ln 2$$

$$\text{C. } t = \frac{m}{2} - \frac{1}{2} \ln 2$$

$$\text{D. } t = \frac{m}{b} \times \frac{1}{2} \ln 2$$

Answer: D



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24. α particle is revolving in radius r with frequency f then find value of magnetic dipole moment .

A. 2evr

B. evr

C. 3evr

D. 4evr

Answer: B



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25. In given thermodynamic process determine efficiency of cycle .



$AB, EF, CD \rightarrow$ isothermal

$$\eta = \frac{Q_1 - Q_2}{Q_1} = ?$$



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26. Determine coefficient of performance of given temperature limit.

$$T_1 = 27^\circ C \text{ [outside fridge]}$$

$$T_2 = -23^\circ C \text{ [inside fridge]}$$

A. 4

B. 5

C. 6

D. 7

Answer: B



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27. Assertion : A charge particle is released
particle is released from rest in magnetic field
then it will move in circular path.

Reason : Work done by magnetic field is non
zero.



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28. Assertion : Water drop stick to glass surface.

Reason : Water have properties of surface tension.



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29. Assertion : Photodiode current work in reverse bias.

Reason : Change in diode increases with increase in intensity .



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30. Assertion : Coefficient of performance in refrigerator may be greater than one.

Reason : Heat extracted from lower temperature reservoir.



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31. Assertion : Binding energy increase with increases atomic mass number.

Reason : Density of nucleus increase with increases in atomic mass number .



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32. Assertion : When electron and holes combine then this reaction is exothermic .

Reason : Hole electron can not combine.



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33. Assertion : Binding energy per unit nucleon increase in atomic mass number .

Reason : Density of nucleus increases with increase in mass number.



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