PHYSICS

BOOKS - AIIMS PREVIOUS YEAR PAPERS

AIIMS 2019 26 MAY EVENING SHIFT

Physics

1.

After switch is closed current drawn from the

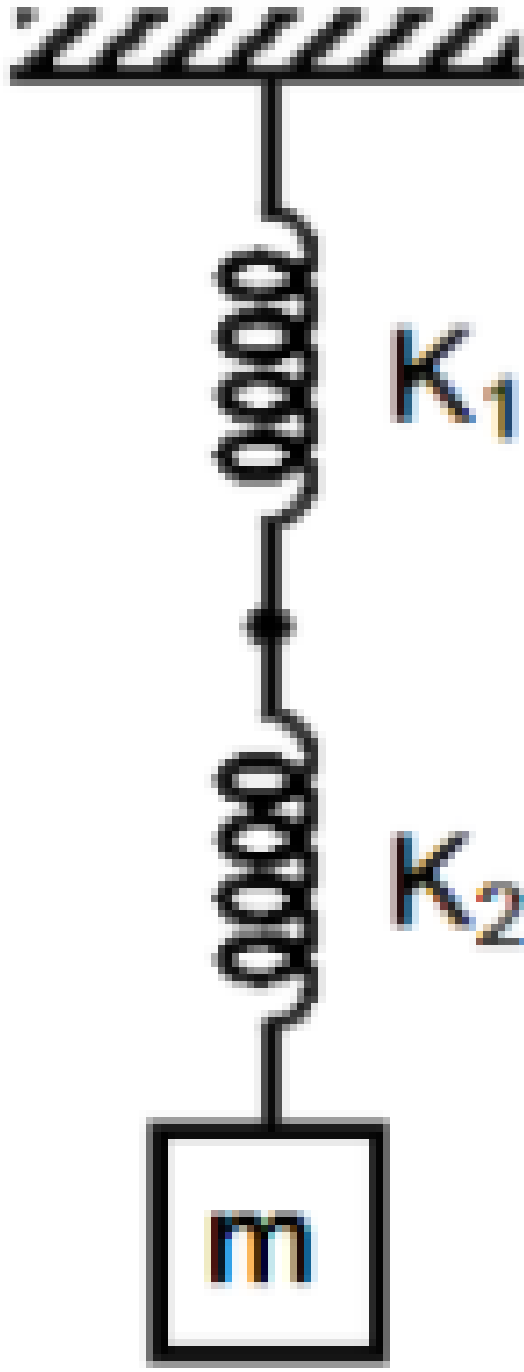battery is :

A. 6A

B. 1.5 A

C. $3A$

D. 4A

Answer: C

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

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

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

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

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

Answer: A

▶ View Text Solution

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

▶ **Watch Video Solution**

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

A. 4

B. 2

C. 6

D. 8

Answer: A

▶ **Watch Video Solution**

5. A body of mass $5 \times 10^3 g$ kg moving with speed 2 m/s collides with a body of mass $15 \times 10^3 kg$ 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

▶ Watch Video Solution

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

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

> ▶ **Watch Video Solution**

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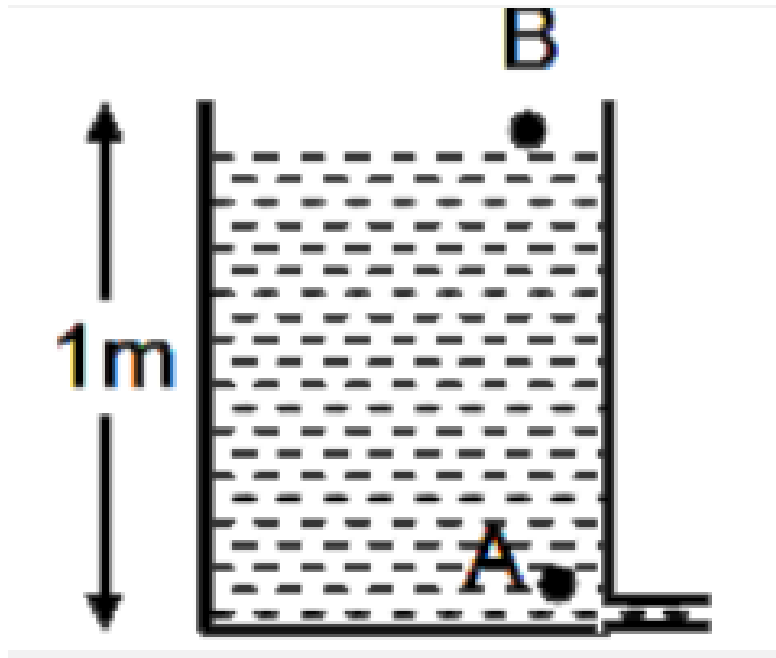
A. $8m/s^2$

B. $4m/s^2$

C. $16m/s^2$

D. $10m/s^2$

Answer: A

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

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

▶ **Watch Video Solution**

---

11. In YDSE $a = 2mm$, D = 2m, $\lambda = 500$ 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. 250μ mu

D. $125\mu m$

Answer: D

▶ **Watch Video Solution**

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}
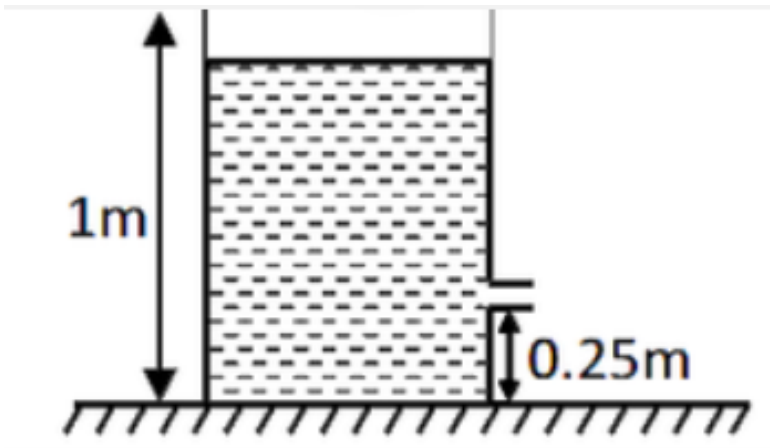
B. 182×10^{-7}

C. 18.2×10^{-7}

D. 1820×10^{-7}

Answer: C

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. $46.5 cm$

B. $56.6 cm$

C. $76.6 cm$

D. $86.6 cm$

Answer: D

> ▶ **View Text Solution**

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. $\dfrac{\varepsilon_0 A}{d} V$

B. $\dfrac{k\varepsilon_0 A}{d} V$

C. $\dfrac{\varepsilon_0 A}{kd} A$

D. zero

Answer: B

▶ **Watch Video Solution**

15. The unit of magnetic flux is

A. Tesla

B. Gauss

C. Webar

D. $Webar / m^2$

Answer: C

▶ **Watch Video Solution**

---

16. Calculate the mean % error in five observations :

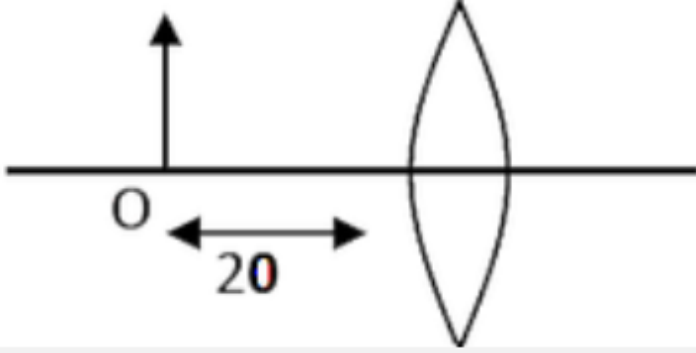$80.0, 80.5, 81.0, 81.5, 82$

A. 0.74 %

B. 1.74 %

C. 0.38 %

D. 1.38 %

Answer: A

▶ **Watch Video Solution**

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

> ▶ View Text Solution

18. Tranformer $\rightarrow$ ideal

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

$200V \rightarrow 80$ houses

Resistance of secondary coild will be :

A. 2Ω

B. 3Ω

C. 1Ω

D. 4Ω

Answer: C

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

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

A. 1

B. 2

C. 3

D. 4

Answer: A

▶ Watch Video Solution

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

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

C. $V_C = 20\left(5 + 8\sqrt{2}\right)$
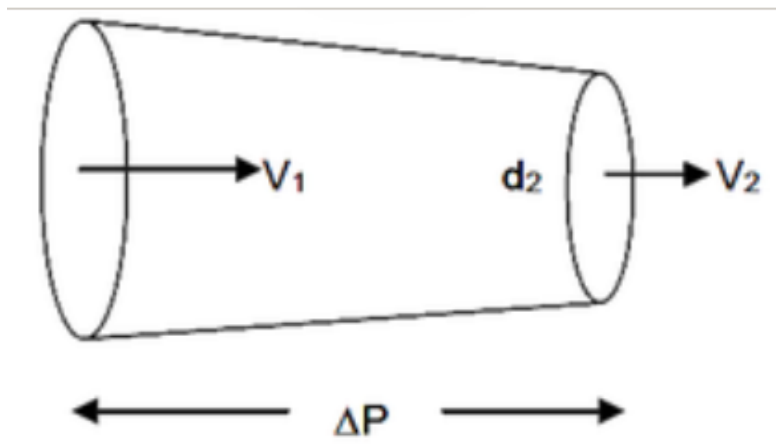
D. $V_C = 10\left(5 + 7\sqrt{2}\right)$

Answer: B

▶ **Watch Video Solution**

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

$d_1 = 5cm, V_1 = 4, d_2 = 2cm, V_2 = ?$

A. 304200 Pa

B. 304500 Pa

C. 302500 Pa

D. 303500 Pa

Answer: B

> ▶ View Text Solution

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

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

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

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

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

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

Answer: D

▶ **Watch Video Solution**

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

▶ **Watch Video Solution**

25. In given thermodynamic process determine

efficiency of cycle .

$AB, EF, CD \rightarrow$ isothermal

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

26. Determine coefficient of performance of given temperature limit.

$T_1 = 27°C$ [outside fridge]

$T_2 = -23°C$ [inside fridge]

A. 4

B. 5

C. 6

D. 7

Answer: B

▶ **Watch Video Solution**

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.

28. Assertion : Water drop stick to glass surface.

Reason : Water have properties of surface tension.

29. Assertion : Photodiode current work in reverse bias.

Reason : Change in diode increases with increase in intensity .

 Watch Video Solution

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

Reason : Heat extracted from lower temperature reservoir.

 Watch Video Solution

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

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

▶ View Text Solution

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

Reason : Hole electron can not combine.

▶ Watch Video Solution

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

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

▶ **View Text Solution**