



PHYSICS

BOOKS - NTA MOCK TESTS

NTA NEET TEST 22

Physics

1. Two rain drop reach the earth with their with the terminal velocity in the ratio 4 :9 . The ratio of their radii is

A. 4:09

B. 2:3

C. 3:2

D. 9:4

Answer: B



Watch Video Solution

2. A manometer connected to a closed tap reads $3.5 \times 10^5 \text{ N/m}^2$. When the valve is opened, the reading of manometer fall is

$3.0 \times 10^5 \text{ N/m}^2$, then velocity of flow of water is

A. 100 m s^{-1}

B. 10 m s^{-1}

C. 1 m s^{-1}

D. $10\sqrt{10} \text{ m s}^{-1}$

Answer: B



Watch Video Solution

3. A diwali rocket is ejecting 0.05kg of gases per second at a velocity of $400\text{m}/\text{sec}$. The accelerating force on the rocket is

A. 20 dyne

B. 20 N

C. 22 dyne

D. 1000 N

Answer: B



Watch Video Solution

4. The quantity of heat required to change the unit mass of a solid substance, from solid-state to liquid state, while the temperature remains constant, is known as

A. latent heat

B. sublimation

C. hoar frost

D. latent heat of fusion

Answer: D



Watch Video Solution

5. The frequencies of two sound sources are 256 Hz and 260 Hz, At $t = 0$ the intensity of sound is maximum. Then the phase difference at the time $t = 1/16$ sec will be

A. zero

B. π

C. $\frac{\pi}{2}$

D. $\frac{\pi}{4}$

Answer: C



Watch Video Solution

6. If the two waves of the same frequency and same amplitude, on superposition produce a resultant disturbance of the same amplitude, then the phase difference between the two arriving wave will be

A. π

B. $\frac{2\pi}{3}$

C. $\frac{\pi}{2}$

D. zero

Answer: B



Watch Video Solution

7. The equation of a progressive wave is given by

$$y = a \sin(628t - 31.4x)$$

If the distances are expressed in cms and time in seconds, then the wave velocity will be

A. 314cm s^{-1}

B. 628cm s^{-1}

C. 20cm s^{-1}

D. 400cm s^{-1}

Answer: C



Watch Video Solution

8. The velocity of sound waves in air is 330m / s . For a particular sound in air, a path difference of 40cm is equivalent to a phase

difference of 1.6π . The frequency of this wave is

A. 165Hz

B. 150Hz

C. 660Hz

D. 330Hz

Answer: C



Watch Video Solution

9. A particle is moving in a circle with uniform speed its motion is

- A. periodic and simple harmonic
- B. periodic but not simple harmonic
- C. not periodic
- D. none of the above

Answer: B



Watch Video Solution

10. Two vessels 1 and 2, made out of different materials are identical in all the geometrical aspects. In both the vessel the same quantity of ice gets melted in 20 min and 30 min respectively. The ratio of the thermal conductivity of the second one to that of the first is

A. 1.5

B. 1

C. $\frac{2}{3}$

D. 4

Answer: A



Watch Video Solution

11. Which of the following is correct option for the free expansion of an ideal gas under adiabatic condition ?

A. $Q = W = 0$ and $\Delta U = 0$

B. $Q \neq 0$, $W = 0$ and $\Delta U = W$

C. $Q = 0$, $W \neq 0$ and $\Delta U = W$

D. $Q \neq 0$, $W \neq 0$ and $\Delta U = 0$

Answer: A



Watch Video Solution

12. A gas mixture consists of 2 moles of oxygen and 4 moles of argon at temperature T . Neglecting all vibrational modes, the total internal energy of the system is

A. $4 RT$

B. $15 RT$

C. $9 RT$

D. 11 RT

Answer: D



Watch Video Solution

13. An iron bar 10 cm in length is kept at $20^{\circ}C$.

If the coefficient of linear expansion of iron is

$\alpha = 11 \times 10^{-6} .^{\circ} C^{-1}$, then at $19^{\circ}C$ it will

be

A. $11 \times 10^{-6} cm$ longer

B. $11 \times 10^{-6} \text{ cm}$ shorter

C. $11 \times 10^{-5} \text{ cm}$ shorter

D. $11 \times 10^{-5} \text{ cm}$ longer

Answer: C



Watch Video Solution

14. If three unit vectors are inclined at an angle of 60° with each other, then the magnitude of their resultant vector will be

A. zero

B. $\sqrt{6}$

C. $\sqrt{3}$

D. $\sqrt{9}$

Answer: B



Watch Video Solution

15. Hook's law defines

A. Stress

B. Strain

C. Modulus of elasticity

D. elastic limit

Answer: C



Watch Video Solution

16. As we go from the equator to the poles, the value of g

A. remain the same

B. decreases

C. increases

D. decreases upto a latitude of 45°

Answer: C



Watch Video Solution

17. A body of mass 10 kg is dropped to the ground from a height of 10 metres. The work done by the gravitational force is $(g = 9.8m / sec^2)$

A. $-490J$

B. $+490J$

C. $-980J$

D. $+980J$

Answer: D



Watch Video Solution

18. Which of the fact is not due to surface tension

A. dancing of a camphor piece over the surface of water

B. small mercury drop itself becomes spherical

C. a liquid surface comes at rest after stirring

D. mercury does not wet the glass vessel

Answer: C



Watch Video Solution

19. A body of mass $m\text{kg}$ lifted by a man to a height of one metre in 30sec . Another mass lifted the same mass to the same height in 60sec . The work done by them are in the ratio.

A. 1 : 2

B. 1 : 1

C. 2 : 1

D. 4 : 1

Answer: B



Watch Video Solution

20. The young's modulus of a wire of length (L) and radius (r) is Y . If the length is reduced to $\frac{L}{2}$ and radius $\frac{r}{2}$, then its young's modulus will be

A. $\frac{Y}{2}$

B. Y

C. $2Y$

D. $4Y$

Answer: B



Watch Video Solution

21. A screen is placed a distance 40 cm away from an illuminated object. A converging lens is placed between the source and the screen and it is attempted to form the image of the source on the screen. If no position could be found, the focal length of the lens

A. must be less than 10 cm

B. must be greater than 10 cm

C. must not be greater than 20 cm

D. must not be less than 10 cm

Answer: B



Watch Video Solution

22. A positive point charge Q is brought near an isolated metal cube.

A. the cube becomes negatively charged

B. the cube becomes positively charged

C. the interior becomes positively charged

and the surface becomes negatively

charged

D. the cube remains neutral

Answer: D



Watch Video Solution

23. A capacitor of capacitance C is charged to a potential V . The flux of the electric field through a closed surface enclosing the capacitor is

A. $\frac{CV}{\epsilon_0}$

B. $\frac{2CV}{\epsilon_0}$

C. $\frac{CV}{2\epsilon_0}$

D. zero

Answer: D



Watch Video Solution

24. two resistors R and $2R$ are connected in series in an electric circuit. The thermal energy developed in R and $2R$ are in the ratio

A. 1 : 2

B. 2 : 1

C. 1 : 4

D. 4 : 1

Answer: A





25. Two parallel, long wires carry currents i_1 and i_2 with $i_1 > i_2$. When the currents are in the same direction, the magnetic field at a point midway between the wires is 10μ T. If the direction of i_2 is reversed, the field becomes 30μ T. The ration $\frac{i_1}{i_2}$ is

A. 4

B. 3

C. 2

D. 1

Answer: C



Watch Video Solution

26. The desirable properties for making permanent magnets are

- A. high retentivity and high coercive force
- B. high retentivity and low coercive force
- C. low retentivity and high coercive force

D. low retentivity and low coercive force

Answer: A



Watch Video Solution

27. The peak voltage in a $220V AC$ source is

A. 200 V

B. about 160V

C. about 310 V

D. 440 V

Answer: C



Watch Video Solution

28. Let n_r and n_b be respectively the number of photons emitted by a red bulb and a blue bulb of equal power in a given time.

A. $n_r = n_b$

B. $n_r < n_b$

C. $n_r > n_b$

D. the information is insufficient to get a relation between n_r and n_b

Answer: C



Watch Video Solution

29. An α particle is bombarded on N^{14} . As a result, a O^{17} nucleus is formed and a particle is emitted. This particle is a

A. neutron

B. proton

C. electron

D. positron

Answer: B



Watch Video Solution

30. A 20volts AC is applied to a circuit consisting of a resistance and a coil with negligible resistance. If the voltage across the resistance is $12V$, the voltage across the coil is

A. 16 V

B. 10 V

C. 8 V

D. 6 V

Answer: A



Watch Video Solution

31. An e.m.f. of 5 volt is produced by a self-inductance, when the current changes at a

steady rate from $3A$ to $2A$ 1millisecond. The value of self-inductance is

A. zero

B. $5H$

C. $5000H$

D. 5 mH

Answer: D



Watch Video Solution

32. In the Young's double slit experiment, the spacing between two slits is 0.1mm . If the screen is kept at a distance of 1.0m from the slits and the wavelength of light is 5000\AA , then the fringe width is

A. 1.0cm

B. 1.5cm

C. 0.5cm

D. 2.0cm

Answer: C



Watch Video Solution

33. An electron is accelerated through a.p.d of 45.5 volt. The velocity acquired by it is (in $m.s^{-1}$)

A. 4×10^6

B. 4×10^4

C. 10^6

D. zero

Answer: A



Watch Video Solution

34. The figure below shows three identical balls A, B and C. Initially, the balls B and C are at rest and the ball A while moving with a velocity v , collides with ball B. If the collision is perfectly elastic, then after the collision



A. all the three balls move with velocity $\frac{v}{2}$

B. A comes to rest and $(B + C)$ moves

with velocity $\frac{v}{\sqrt{2}}$

C. A move with velocity v and $(B + C)$

moves with velocity v

D. A and B comes to rest and C moves with

velocity v

Answer: D



Watch Video Solution

35. The moment of inertia of a solid sphere of radius R about its diameter is same as that of a disc of radius $2R$ about its diameter. The ratio of their masses is

A. 5 : 2

B. 5 : 8

C. 4 : 1

D. 2 : 1

Answer: A



Watch Video Solution

36. A uniform chain of length L and mass M is lying on a smooth table and one-third of its length is hanging vertically down over the edge of the table. If g is the acceleration due to gravity, the work required to pull the hanging part on to the table is

A. MgL

B. $\frac{MgL}{3}$

C. $\frac{MgL}{9}$

D. $\frac{MgL}{18}$

Answer: D



Watch Video Solution

37. Choose the correct statement.

A. Work done by internal forces is equal to change in potential energy

B. net work done on the body is equal to change in total mechanical energy

C. net work done by all force other than conservative forces is equal to change in total mechanical energy

D. net work done on the system by internal forces is always zero

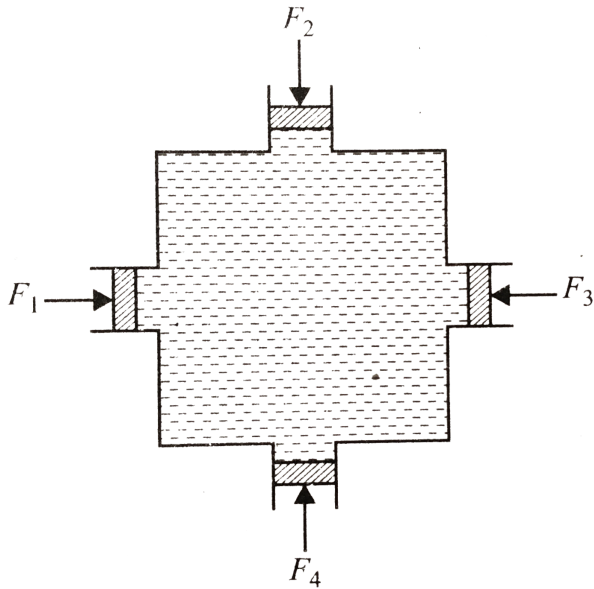
Answer: C



Watch Video Solution

38. Figure shows water filled in a symmetrical container. Four pistons of equal area A are used at the four openings to keep the water in equilibrium. Now an additional force F is applied at each piston. The increase in the pressure at the centre of the container due to

this addition is



A. $\frac{F}{A}$

B. $\frac{2F}{A}$

C. $\frac{4F}{A}$

D. 0

Answer: A



Watch Video Solution

39. A thin copper wire of length L increase in length by 1% when heated from temperature T_1 to T_2 . What is the percentage change in area when a thin copper plate having dimensions $2L \times L$ is heated from T_1 to T_2 ?

A. 2%

B. 1%

C. 4 %

D. 3 %

Answer: A



Watch Video Solution

40. 80 g of water at $30^{\circ} C$ are poured on a large block of ice at $0^{\circ} C$. The mass of ice that melts is

A. 30 g

B. 80 g

C. 1600 g

D. 150 g

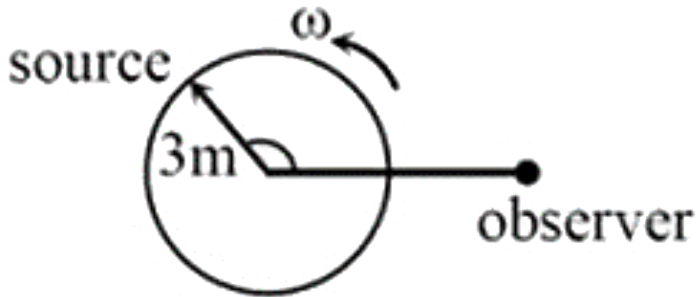
Answer: A



Watch Video Solution

41. A source is moving on a circle of radius 3m with constant angular velocity $\omega = 5\text{rads}^{-1}$. If the observer is at a distance 5 cm from the centre of the circle, the time interval between

the maximum and minimum frequency received by the observer is



- A. $\frac{\pi}{5}$
- B. $\frac{2}{5} \cos^{-1} \left(\frac{3}{4} \right)$
- C. $\frac{2}{5} \cos^{-1} \left(\frac{3}{5} \right)$
- D. $\frac{2}{5} \sin^{-1} \left(\frac{3}{5} \right)$

Answer: C



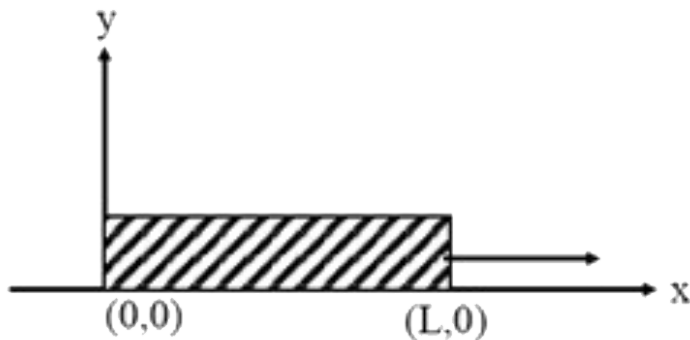
Watch Video Solution

42. A uniform rod of length L and mass M has been placed on a rough horizontal surface as shown in the figure. The rod is pulled by applying a horizontal force. The coefficient of friction μ between the surface and the rod is given by

$$\mu = \begin{cases} \mu_0 x & 0 \leq x \leq L \\ 0 & x > L \end{cases}, \text{ where } \mu_0 \text{ is a}$$

positive constant. The heat generated due to

friction as the rod moves by a distance L is



A. $\frac{\mu_0 MgL^2}{2}$

B. $\mu_0 MgL^2$

C. $\frac{\mu_0 MgL^2}{3}$

D. $\frac{\mu_0 MgL^2}{6}$

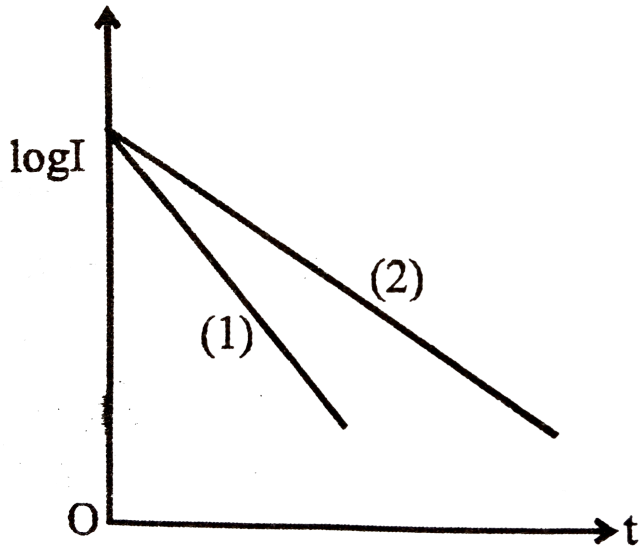
Answer: A



Watch Video Solution

43. A capacitor of capacity C is charged to a steady potential difference V and connected in series with an open key and a pure resistor 'R'. At time $t = 0$, the key is closed. If $I =$ current at time t , a plot of $\log I$ against 't' is as shown in (1) in the graph. Later one of the parameters i.e. V , R or C is changed keeping the other two constant, and graph (2) is

recorded. then-



- A. C is reduced
- B. C is increased
- C. R is reduced
- D. R is increased

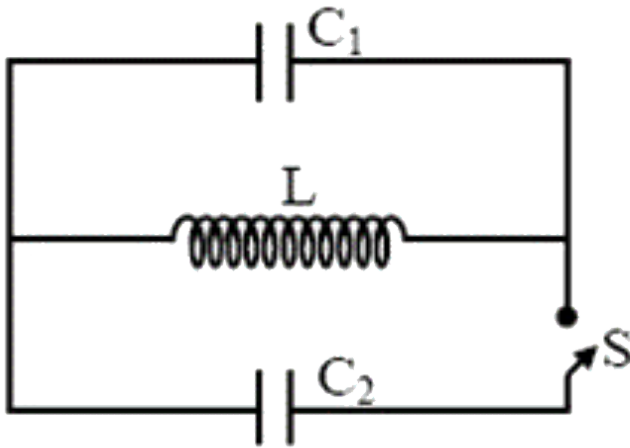
Answer: B



Watch Video Solution

44. At the moment $t = 0$, when the charge on the capacitor C_1 is zero, the switch is closed. If I_0 be the current through inductor at $t = 0$,

then for $t > 0$ (initially C_2 is unchanged)



A. maximum current through inductor

equals $\frac{I_0}{2}$

B. maximum current through inductor

equals $\frac{C_1 I_0}{C_1 + C_2}$

C. maximum charge on $C_1 = \frac{C_1 I_0 \sqrt{LC_2}}{C_1 + C_2}$

D. maximum

charge

on

$$C_1 = C_1 I_0 \sqrt{\frac{L}{C_1 + C_2}}$$

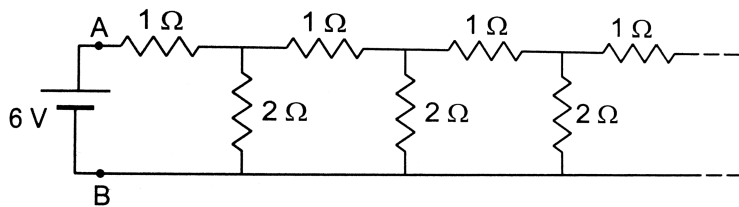
Answer: D



Watch Video Solution

45. An infinite ladder is constructed with $1(\Omega)$ and $2(\Omega)$ resistor as shown in figure. (a) Find the effective resistance between the point A and B. (b) Find the current that passes through the (2Ω) resistor nearest to the

battery.



A. $1A$

B. $1.5A$

C. $2A$

D. $2.5A$

Answer: B



Watch Video Solution

