



PHYSICS

BOOKS - NTA MOCK TESTS

NTA NEET SET 59

Physics

1. The total energy of an electron in the first excited state of the hydrogen atom is about -3.4 eV.

What is the potential energy of the electron in this state ?

A. 6.8

B. 3.4

C. -6.8

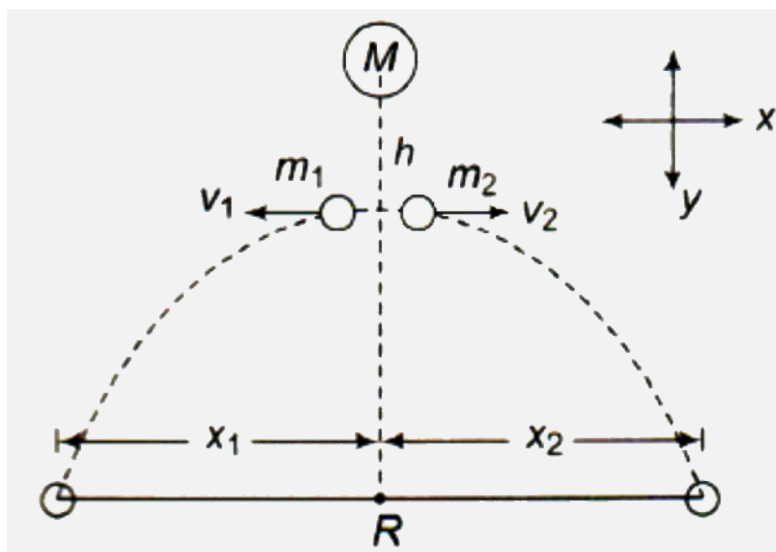
D. -3.4

Answer: C



Watch Video Solution

2. The ball starts falling from some height. After falling height h , it breaks into two parts m_1 and m_2 . Finally, they reach the earth surface. Choose the correct option.



A. R will depend on h

B. If $m_1 > m_2$, then $x_1 < x_2$

C. The centre of mass of the two balls (system) will shift towards the heavier part

D. None of the above

Answer: B



Watch Video Solution

3. A sphere is suspended by a thread of length l .
What minimum horizontal velocity has to be

imparted to the ball for it to reach the height
of the suspension?

A. $2\sqrt{gl}$

B. $\sqrt{2gl}$

C. \sqrt{gl}

D. $4\sqrt{gl}$

Answer: B



Watch Video Solution

4. For a P - N junction diode which of the following statements is true about the order of magnitude of the various currents ?

A. Forward current is in mA and reverse current is in μA

B. Forward current is in μA and reverse current is in mA

C. Both forward and reverse currents are in μA

D. Both forward and reverse currents are in
mA

Answer: A



Watch Video Solution

5. The current of a conductor following through a conductor in terms of the drift speed of electrons is (the symbols have their usual meanings)

A. $I = \sqrt{nAevd}$

B. $I = A\sqrt{nev d}$

C. $I = \frac{ne}{Avd}$

D. $I = neAvd$

Answer: D



Watch Video Solution

6. A $30\mu F$ capacitor is connected to a 150 V, 60 Hz ac supply. The rms value of current in the circuit is

A. 17 A

B. 1.7 A

C. 1.7 mA

D. $1.7\mu A$

Answer: B



Watch Video Solution

7. What is the largest charge a metal ball of 1 mm radius can hold ? (Dielectric strength of air is $3 \times 10^6 Vm^{-1}$)

A. 3 nC

B. $\frac{1}{3} \text{ nC}$

C. 2 nC

D. $\frac{1}{2} \text{ nC}$

Answer: B



Watch Video Solution

8. The weight of a body at the centre of the earth is

A. $9.8ms^{-2}$

B. 0

C. $4.9ms^{-2}$

D. $10ms^{-2}$

Answer: B



Watch Video Solution

9. The two ends of a metal rod are maintained at temperatures $100^{\circ}C$ and $110^{\circ}C$. The rate of heat flow in the rod is found to be $4.0J/s$.

If the ends are maintained at temperatures $200^{\circ}C$ and $210^{\circ}C$, the rate of heat flow will be :

A. $44.0Js^{-1}$

B. $16.8Js^{-1}$

C. $8.0Js^{-1}$

D. $4.0Js^{-1}$

Answer: D



Watch Video Solution

10. An engineer claims to have made an engine delivering 10 kW power with fuel consumption of 1g s^{-1} . The calorific value of fuel is 2 k cal / g. His claim

A. is valid

B. is invalid

C. depends on engine design

D. depends on the load

Answer: B



Watch Video Solution

11. A charged particle moving in a magnetic field experiences a resultant force

A. In the direction opposite to the field

B. In the direction of field

C. In the direction perpendicular to both
the field and its velocity

D. None of the above

Answer: C



Watch Video Solution

12. The angle of which the velocity vector of a projectile thrown with a velocity u at an angle θ to the horizontal will take with the horizontal after time t of its being thrown up is

A. θ

B. $\tan^{-1} \left(\frac{\theta}{t} \right)$

C. $\tan^{-1} \left(\frac{v \cos \theta}{v \sin \theta - gt} \right)$

D. $\tan^{-1} \left(\frac{v \sin \theta - gt}{v \cos \theta} \right)$

Answer: D



Watch Video Solution

13. A man weighing 60 kg is in a lift moving down with an acceleration of 1.8 ms^{-2} . The force exerted by the floor on him is

A. 588 N

B. 480 N

C. Zero

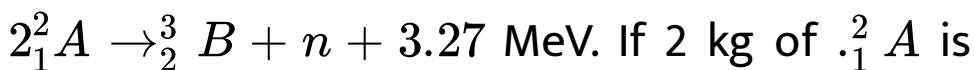
D. 696 N

Answer: D



Watch Video Solution

14. The following fusion reaction take place



subjected to the above reaction, the energy

released is used to light a 100 W light a lamp,

how long will the lamp glow ?

A. 7×10^3 years

B. 3×10^5 years

C. 5×10^4 years

D. 2×10^6 years

Answer: C



Watch Video Solution

15. A man measures the period of a simple pendulum inside a stationary lift and find it be T . If the lift accelerates downwards with an acceleration of $g/3$, then the period of the pendulum will be

A. $\sqrt{2}T$

B. $\frac{T}{\sqrt{2}}$

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

D. $\frac{T}{3}$

Answer: C



Watch Video Solution

16. Photoelectric emission occurs only when the incident light has more than a certain minimum

A. Power

B. Wavelength

C. Intensity

D. Frequency

Answer: D



Watch Video Solution

17. Torricelli's barometer used mercury. Pascal duplicated it using French wine of density

984kgm^{-3} . Determine the height of the wine column for normal atmospheric pressure.

A. 10.5 m

B. 6.58 m

C. 7.50 m

D. 10.8 m

Answer: A



Watch Video Solution

18. An object is placed at a distance of $\frac{f}{2}$ from a convex lens of focal length f . The image will be

A. At one of the foci, virtual and double its size

B. Is greater than 1.5 but less than 2.0

C. At $2f$, virtual and erect

D. None of the above

Answer: A





19. On the application of a constant torque , a wheel is turned from rest through 400 radians in 10 s. The angular acceleration is :

A. 8rads^{-2}

B. 5rads^{-2}

C. 6rads^{-2}

D. 7rads^{-2}

Answer: A



Watch Video Solution

20. R.M.S. velocity of oxygen molecules at N.T.P is 0.5 km.ls. The R.M.S velocity for the hydrogen molecule at N.T.P is

A. 4km s^{-1}

B. 2km s^{-1}

C. 3km s^{-1}

D. 1km s^{-1}

Answer: B



Watch Video Solution

21. A 5.5 m length of string has a mass of 0.035 kg. If the tension in the string is 77 N the speed of a wave on the string is

A. 110ms^{-1}

B. 165ms^{-1}

C. 77ms^{-1}

D. 102ms^{-1}

Answer: A



Watch Video Solution

22. A force F is related to the position of a particle by the relation $F = (10x^2)N$. Find the work done by the force when the particle moves from $x = 2m \rightarrow x = 4m$.

A. $\frac{56}{3}J$

B. 560 J

C. $\frac{560}{3}J$

D. $\frac{3}{560}J$

Answer: C



Watch Video Solution

23. In a Fraunhofer diffraction at a single slit, if yellow light illuminating the slit is replaced by blue light, then diffraction bands

- A. Remain unchanged
- B. Become wider
- C. Disappear
- D. Become narrower

Answer: D



Watch Video Solution

24. The angular speed of second hand in a watch is

A. $\frac{\pi}{1800} \text{rads}^{-1}$

B. $\frac{\pi}{30} \text{rads}^{-1}$

C. $\frac{\pi}{90} \text{rads}^{-1}$

D. $\frac{\pi}{60} \text{rads}^{-1}$

Answer: B



Watch Video Solution

25. A simple pendulum of length 'L' has mass 'M' and it oscillates freely with amplitude energy is

(g = acceleration due to gravity)

A. $\frac{MgA^2}{2L}$

B. $\frac{MgA}{2L}$

C. $\frac{MgA^2}{L}$

D. $\frac{2MgA^2}{L}$

Answer: A



Watch Video Solution

26. Two inductors each of inductance L are connected in parallel. One more inductor of value 5 mH is connected in series of this configuration then the effective inductance is 15 mH . The value of L ismH.

A. 10

B. 5.0

C. 2.5

D. 20

Answer: D



Watch Video Solution

27. Two like charges of magnitude 1×10^{-9} coulomb and 9×10^{-9} coulomb are separated by a distance of 1 meter. The point on the line joining the charges , where the

force experienced by a charge placed at that point is zero , is

A. 0.25 m from the charge $1 \times 10^{-9}C$

B. 0.75 m from the charge $9 \times 10^{-9}C$

C. 0.25 m from the charge $1 \times 10^{-9}C$, 0.75 m from charge $9 \times 10^{-9}C$

D. at all points on the line joining the charges

Answer: C



Watch Video Solution

28. Acceleration due to gravity is ' g ' on the surface of the earth. The value of acceleration due to gravity at a height of 32 km above earth's surface is (Radius of the earth = 6400 km)

A. 0.99 g

B. 0.8 g

C. 1.01 g

D. 0.9 g

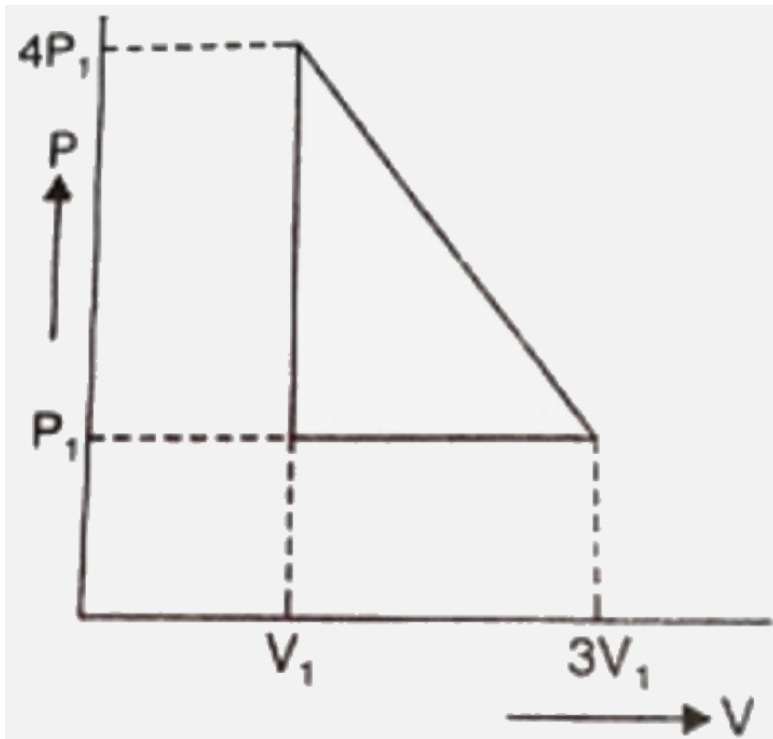
Answer: A



Watch Video Solution

29. An ideal gas is taken around the cycle ABCA as shown in P-V diagram. The net work done by

the gas during the cycle is equal to:



A. P_1V_1

B. $3P_1V_1$

C. $6P_1V_1$

D. $12P_1V_1$

Answer: B



Watch Video Solution

30. The percentage change in internal energy, when a gas is cooled from $927^{\circ}C$ to $27^{\circ}C$, is

- A. 75 %
- B. 300 %
- C. 50 %
- D. 100 %

Answer: A



Watch Video Solution

31. A proton and a deuteron with the same initial kinetic energy enter a magnetic field in a direction perpendicular to the direction of the field . The ratio of the radii of the circular trajectories described by them is

A. 1 : 4

B. $1 : \sqrt{2}$

C. 1:1

D. 1:2

Answer: B



Watch Video Solution

32. A projectile is given an initial velocity of $(\hat{i} + 2\hat{j})$ The Cartesian equation of its path is $(g = 10ms^{-1})$ (Here , \hat{i} is the unit vector along horizontal and \hat{j} is unit vector vertically upwards)

A. $y = 2x - 5x^2$

B. $y = X - 5x^2$

C. $4y = 2x - 5x^2$

D. $y = 2x - 25x^2$

Answer: A



Watch Video Solution

33. For a substance the average life for α – emission is 1620 years and for β – emission is

405 years. After how much time the $1/4$ of the material remains after α and β emission ?

A. 648 years

B. 324 years

C. 449 years

D. 810 years

Answer: C



Watch Video Solution

34. Which of the following quantity does not change due to damping of oscillations?

A. Angular frequency

B. Time period

C. Initial phase

D. Amplitude

Answer: C



Watch Video Solution

35. Light of two different frequencies whose photons have energies 1eV and 2.5 eV respectively illuminate a metallic surface whose work function is 0.5 eV successively. Ratio of maximum kinetic energy of emitted electrons will be:

A. $1:4$

B. $1:2$

C. $1:1$

D. $1:5$

Answer: B



Watch Video Solution

36. Hydraulic lift' works on the basis of

- A. Stoke's law
- B. Bernoulli's law
- C. Pascal's law
- D. Toricelli's law

Answer: C



Watch Video Solution

37. According to Cartesian sign convention, in ray optics

A. All distances are taken negative

B. All distance in the direction of incident ray are taken positive

C. All distance are taken positive

D. All distances in the direction of incident ray are taken negative

Answer: B



Watch Video Solution

38. On applying a constant torque, a wheel at rest, turns through 400 radian in 10s. Find angular acceleration. If same torque continues to act, what will be angular velocity of the wheel after 20s from start ?

A. 160 rad s^{-1}

B. 150 rad s^{-1}

C. 120 rad s^{-1}

D. 130 rad s^{-1}

Answer: A



Watch Video Solution

39. From Brewster's law, except for polished metallic surfaces, the polarising angle

A. depends on wave length and is different for different colours.

B. independent of wavelength and is different for different colours.

C. independent of wavelength and is same for different colours.

D. depend on wavelength and is same for different colours.

Answer: A



Watch Video Solution

40. One mole of a monoatomic ideal gas is mixed with one mole of a diatomic ideal gas . The molar specific heat of the mixture at constant volume is

A. $(3/2)R$

B. $(5/2)R$

C. $2R$

D. $4R$

Answer: C



Watch Video Solution

41. The least count of a stop watch is 0.2 s, The time of 20 oscillations of a pendulum is measured to be 25s. The percentage error in the time period is

A. 8 %

B. 1.8 %

C. 0.8 %

D. 0.1 %

Answer: C



Watch Video Solution

42. If there is zero absorption in the polaroid and if the intensity of plane-polarized light coming out of polaroid is A^2 , then the intensity of the incident beam will be

A. A^2

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

C. $2A^2$

D. None of these

Answer: C



Watch Video Solution

43. A point source emits sound equally in all directions in a non-absorbing medium. Two point P and Q are at distance of $2m$ and $3m$ respectively from the source. The ratio of the intensities of the wave at P and Q is :

A. 3 : 2

B. 2: 3

C. 9: 4

D. 4: 9

Answer: C



Watch Video Solution

44. A person pushes a block of mass 4 kg up a frictionless inclined plane 10 m long and that makes an angle of 30° with the horizontal .

Then the work done is

A. $33.5J$

B. $-392J$

C. $339.4J$

D. $-196J$

Answer: D



Watch Video Solution

45. The number of turns of primary and secondary coils of a transformer are 5 and 10 respectively and the mutual inductance of the

transformer is 25 henry. Now the number of turns in the primary and secondary of the transformer are made 10 and 5 respectively. The mutual inductance of the transformer in henry will be

A. 25 H

B. 12.5 H

C. 50 H

D. 6.25 H

Answer: A



 [Watch Video Solution](#)