PHYSICS

BOOKS - SAI PHYSICS (TELUGU ENGLISH)

KINETIC THEORY

Problem Mcqs

1. R.M.S. velocity of oxygen molecules at N.T.P. is 0.5 Km/s. The R.M.S. velocity of he hydrogen

molecule at N.T.P. is

A. 4Km/s

B. 2 Km/s

C. 3 Km/s

D. 1Km/s

Answer:

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2. In a region of uniform electric field ofn intencity E, an electron of mass m_e is released from rest. The distance travelled by the eloctron in a time t is

A. $\frac{2m_e t^2}{e}$

B. $\frac{eEt^2}{2m_e}$

C. $\frac{m_e g t^2}{eE}$

D. $\frac{2Et^2}{em_e}$

Answer:

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3. A horizontal force just sufficient to move body of mass 4 kg lying on a rough horizontal surface, is applied on it. Coeficients of static and kinetic frictions are 0.8 and 0.6 respectively. If the force continues to act even after the body has started moving, the acceleration of the body is $\left(g = 10ms^{-2}\right)$

A. $6ms^{-2}$

B. $8ms^{-2}$

C. $2Ms^{-2}$

D. $4ms^{-2}$

Answer:

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4. A ball P moving with a speed of vms^{-1} collides directly with another identical ball Q moving with a speed $10ms^{-1}$ in the opposite direction. P comes to rest after the collision. If

the coefficient of restitution is 0.6, the value of v is

A. $30ms^{-1}$

B. $40ms^{-1}$

C. $50ms^{-1}$

D. $60ms^{-1}$

Answer:

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5. The force required to move a body up a rough inclined plane is double the foce required to prevent the body from slinding down the plane. The coefficient of friction, when the angle of plane is 60° is

A. $\frac{1}{3}$

B. $\frac{1}{\sqrt{2}}$

C. $\frac{1}{\sqrt{3}}$

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

Answer:

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6. The work function a metel is 2 eV. If a radiation of wavelengh 3000 A° is incident on it, the maximum kinetic energy of the emitted photoelectros is (Plank's constant $h = 6.6 \text{times } 10^{-34}$ J, velocity of light $c = 3 \text{ times } 10^{8} ms/s, 1eV = 1.6 \text{times } 10^{-19}$

A. $4.4 \text{times} 10^{-19}$ J

B. 5.6 times $10^{-19} J$

C. 3.4 $\text{times} 10^{-19} J$

D. 2.5 times $10^{-19} j$

Answer:

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7. When the engine is switched off vehicle of mass M is moving on a rough horizontal road eith moment p. If the coefficient of friction between the road and tyres of vehicle is μ_k, the distace travelled by the vehicle before it comes to rest is

A. $\frac{p^2}{2\mu_k M^2 g}$

B. $\frac{2\mu_k M^2 G}{p^2}$

C. $\frac{p^2}{2\mu_{kg}}$

D. $\frac{p^2 M^2}{2\mu_{kg}}$

Answer:

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8. A uniform chain of length L is lying on the horizontal table.If the coefficient of friction between the chain and table top is m, what is

the maximum length of the chain that can hang over the edge of the table without disturbing the rest of the chain on the table?

A. $\frac{L}{(1+\mu)}$

B. $\mu\frac{L}{(1+\mu)}$

C. $\mu\frac{L}{(1+\mu)}$

D. $\mu\frac{L}{(1-\mu)}$

Answer:

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9. A body of mass $m_1 = 4$ kg moves at $5\hat{i}m/s$ and another body of mass $m_2 = 2$ kg moves at $10\hat{i}m/s$. The kinetic energy of center of mass is

A. $\frac{200}{3}J$

B. $\frac{500}{3}J$

C. $\frac{400}{3}J$

D. $\frac{800}{3}J$

Answer:

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10. An object takes n times as much time as to slide down a 45° rough inclined plane it takes to slide down a perfectly smooth inclined plane of the same inslination. The coefficient of kinetic friction between the object and the rough inclied is given by

A. $\left(1-\frac{1}{n^2}\right)$

B. $\left(\frac{1}{1-n^2}\right)$

C. $\sqrt{1-\frac{1}{n^2}}$

D. $\sqrt{1+\frac{1}{n^2}}$

Answer:

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11. A body is projected vertically upwatds at time t=0 and is it seen at a height H at time t_1 and t_2 second during its flight. The maximum height attainet is (g is acceleration due to garavity).

A. $\frac{g(t_2 - t_1)^2}{8}$

B. $\frac{g(t_2 + t_2)^2}{4}$

C. $\frac{g(t_1 + t_2)}{8}$

D. $\frac{g(t_2 - t_1)^2}{4}$

Answer:

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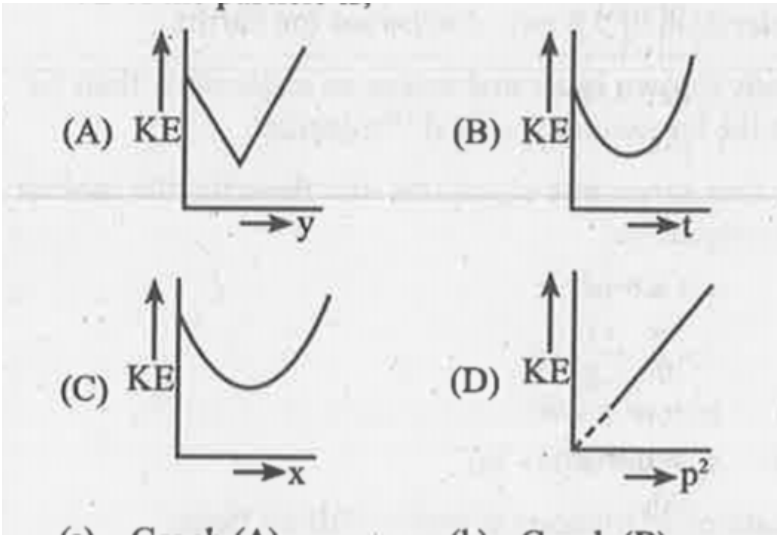
12. A partical is projected up from a point at an angle theta whith the horizontal displacement, the graph among the following which does not represent the variation of

kinrtic energy KE of the particle is,



A. Graph (A)

B. Graph (B)

C. Graph (C)

D. Graph (D)

Answer:

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13. A motor of power P_0 is used to deliver water at a certain rate through a given horizontal pipe. To increase the rate of flow of water through the same pipe n times, the power of the moter is increased to P_1 to P_0 is

A. n:1

B. $n^2 : 1$

C. $n^3 : 1$

D. $n^4 : 1$

Answer:

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14. The component of vector $\vec{A} = a_x \hat{i} + a_y \hat{j} + a_z \hat{k}$ along the direction of 'hati - hatj'

A. $a_x - a_y + a_z$

B. $a_x - a_y$

C. $\left(a_x - a_y\right)\sqrt{2}$

D. $\left(a_x + a_y + a_z\right)$

Answer:

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15. A ball thrown vertically i.lp to reach its maximum height in t second. The total time from the time of projection to reach a. point at half of its maximum height while returning (in second) is

A. $\sqrt{2}t$

B. $\left(1+\frac{1}{\sqrt{2}}\right)t$

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

D. $\frac{t}{\sqrt{2}}$

Answer:

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16. If a body is projected with angle θ to the horizontal, then ·

A. Its velocity is always perpendicular to its acceleration

B. Its velocity becomes zero at its maximum height

C. Its velocity makes zero angle with the horizontal at its maximum height

D. The body just before hitting the ground, the direction of velocity coincides with the acceleration.

Answer:

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17. Velocity and acceleration vectors of charged particle moving perpendicular to the direction of magnetic field at a given instant of time are $\vec{V} = 2\hat{i} + c\hat{j}$ and $\vec{a} = 3\hat{i} + 4\hat{j}$ respectively. Then value, of c is

A. 3

B. 1.5

C. -1.5

D. -3

Answer:

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18. A bucket filled with water is tied to a rope of len"gt"h 0.5 m and is rotated in a circular path in vertical plane. The least velocity it should have at the lowest point of circle so that water does not spill is,

A. $\sqrt{5}ms^{-1}$

B. $\sqrt{10}ms^{-1}$

C. $5ms^{-1}$

D. $2\sqrt{5}ms^{-1}$

Answer:

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19. A man standing on a road has to hold his umbrella at 30° with the vertical to keep the rain away. He throws the umbrella and starts running at $10kmh^{-1}$ He finds that raindrops

are hitting his head vertically. The actual speed of raindrops is

A. $20kmh^{-1}$

B. $10\sqrt{3}kmh^{-1}$

C. $20\sqrt{3}kmh^{-1}$

D. $10kmh^{-1}$

Answer:

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20. A body is projected from the earth at an angle 30° with the horizontal with some initial velocity. If its range is 20 m, the maximum height reached by it is (in metre)

A. $5\sqrt{3}$

B. $\frac{5}{\sqrt{3}}$

C. $\frac{10}{\sqrt{3}}$

D. $\frac{10}{\sqrt{3}}$

Answer:

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21. At a given instant of time the position vector a particle moving in a circle with a velocity $3\hat{i} - 4\hat{j} + 5k$ is $\hat{i} + 9\hat{j} - 3\hat{k}$. Its angular velocity at that time is

A. $\frac{\left(13\hat{i} + 29\hat{j} - 31\hat{k}\right)}{\sqrt{146}}$

B. $\frac{\left(13\hat{i} - 29\hat{j} - 31\hat{k}\right)}{146}$

C. $\frac{\left(13\hat{i} + 29\hat{j} - 31\hat{k}\right)}{\sqrt{146}}$

D. $\frac{\left(13\hat{i} + 29\hat{j} + 31\hat{k}\right)}{\sqrt{146}}$

Answer:

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22. A body is projected vertically upwatds at time t=0 and is it seen at a height H at time t_1 and t_2 second during its flight. The maximum height attainet is (g is acceleration due to garavity).

A. $\frac{g}{4}(t_1 + t_2)^2$

B. $g\left(\frac{t_1 + t_2}{4}\right)^2$

C. $2g\left(\frac{t_1+t_2}{4}\right)^2$

D. $\frac{g}{4}(t_1t_2)$

Answer:

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23. The equation of trajectory ofa projectile is $y = 10x - \frac{5}{9}x^2$ If we assume $g = 10ms^{-2}$, the range of projectile (in metre) is

A. 36

B. 24

C. 18

D. 9

Answer:

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24. At a given instant of time two particles are having the position vectors $4\hat{i} - 4\hat{j} + 7\hat{k}$ metre and $2\hat{i} + 2\hat{j} + 5\hat{k}$ respectively. If the velocity of the first particle be $0.4\hat{i}ms^{-1}$, the

velocity of second particle in metre per second

if they collide after 10 s is

A. $6\left(\hat{i}-\hat{j}+\frac{1}{3}\hat{k}\right)$

B. $0.6\left(\hat{i}-\hat{j}+\frac{1}{3}\hat{k}\right)$

C. $6\left(\hat{i}+\hat{j}+\frac{1}{3}\hat{k}\right)$

D. $0.6\left(\hat{i}+\hat{j}-\frac{1}{3}\hat{k}\right)$

Answer:

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25. The horizontal and vertical displacements x and y of a projectile at a given time t are given by x = 6t metre and $y = 8t - 5t^2$ metre. The range of the projectile in metre is

A. 9.6

B. 10.6

C. 19.2

D. 38.4

Answer:

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26. The equations of motion of a projectile are given by x = 36t inetre and 2y = $96t - 9.8t^2$ metre. The angle of projection is

A. $\sin^{-1}\left(\frac{4}{5}\right)$

B. $\sin^{-1}\left(\frac{3}{5}\right)$

C. $\sin^{-1}\left(\frac{4}{3}\right)$

D. $\sin^{-1}\left(\frac{3}{4}\right)$

Answer:

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27. A body of mass M kg is on the .top point of a smooth hemisphere of radius 5 m. It is released to slide down the surface of the hemisphere. It leaves the surface when velocity is $5ms^{-1}$, At this instant the angle made by the radius vector of the body with the vertical is (acceleration due to gravity $=10ms^{-2}$)

A. 30°

B. 45°

C. 60°

D. 90°

Answer:

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28. The horizontal and vertical displacements of a projectile at time t are $x = 36t$ and $y = 48t - 4.9t^2$ respectively. Imtial velocity of the projectile in ms^{-1} is

A. 15

B. 30

C. 45

D. 60

Answer:

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29. An object is projected with a velocity of $20ms^{-1}$ making an angle of 45° with horizontal. The equation for the trajectory is

$h = Ax - Bx^2$, where h is height, x is horizontal distance A and B are constants. The ratio A : B is $\left(g = 10ms^{-2}\right)$

A. $1:5$

B. $5:1$

C. $1:40$

D. $40:1$

Answer:

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30. A body is thrown vertically upwards with an initial velocity u reaches maximum height in 6 s. The ratio of distance travelled by the body in the first and seventh second is

A. $11:1$

B. $11:2$

C. $1:2$

D. $1:11$

Answer:

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31. A body is thrown horizontally from the top of a tower of 5 m height. It touches the ground at a distance of 10 m from the foot of the tower. The initial velocity of the body is

A. $2.5ms^{-1}$

B. $5ms^{-1}$

C. $10ms^{-1}$

D. $20ms^{-1}$

Answer:

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32. Four bodies P, Q, R and S are projected with equal velocities having angles ofprojection 15°, 30°, 45° and 60° with the horizontal respectively. The body having shortest range is

A. P

B. Q

C. R

D. S

Answer:

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33. The speed of a projectile at its maximum height is $\frac{\sqrt{3}}{2}$ times its initial speed. If the range of the projectile is P times the maximum height attained by it, then P equals

A. $\frac{4}{3}$

B. $2\sqrt{3}$

C. $4\sqrt{3}$

D. $\frac{3}{4}$

Answer:

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34. Water drops fall from a tap on the floor 5 m below at regular intervals of time, the first drop striking the floor when the fifth drop begins to fall. The height at which the third drop will be, from ground, at that instant

when first drop strikes the ground, will be, (taking g = $10ms^{-2}$)

A. 1.25 m

B. 2.15 m

C. 2.75

D. 3.75 m

Answer:

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35. A car starts from rest and travels with uniform acceleration a, for some time and then with uniform retardation β and comes to rest. If the total time of car is 't', the maximum velocity attained by it is given by

A. $\frac{\alpha\beta}{\alpha+\beta}t$

B. $\frac{1}{2}\frac{\alpha\beta}{\alpha+\beta}t^2$

C. $\frac{\alpha\beta}{\alpha-\beta}t$

D. $\frac{1}{2}\frac{\alpha\beta}{\alpha-\beta}t^2$

Answer:

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36. The angle between two vectors $6\hat{i}+6\hat{j}-3\hat{k}$ and $7\hat{i}+4\hat{j}+4\hat{k}$ is given by

A. $\frac{\cos^{-1}(1)}{\sqrt{3}}$

B. $\frac{\cos^{-1}(5)}{\sqrt{3}}$

C. $\frac{\sin^{-1}(2)}{\sqrt{3}}$

D. $\frac{\sin^{-1}\left(\sqrt{5}\right)}{3}$

Answer:

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37. The minimum speed for a particle al the lowest point of vertical circle of radius R, to describe the circle is v. If the radius of circle is reduced to one-fourth its value, the corresponding minimum speed will be

A. $\frac{v}{4}$

B. $\frac{v}{2}$

C. 2 v

D. 4 v

Answer:

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38. A car is moving on a ciirular level road of curvature 300 m. If the coefficient of friction is 0.3 and acceleration due to gravity 10 ms^{-2}, the maximum speed that car can have is

A. $30kmh^{-1}$

B. $81kmh^{-1}$

C. $108kmh^{-1}$

D. $162kmh^{-1}$

Answer:

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39. A person throws a bottle into a dust-bin at the same height as he is 2 m away at an angle of 45°. The velocity of the throw is

A. g

B. $\sqrt{g}$

C. 950s

D. $\sqrt{2}g$

Answer:

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40. A car starts from rest, attains a velocity of $36kmh^{-1}$ with an acceleration of $0.2ms^{-2}$, travels 9 km with this uniform velocity and then comes to halt with a uniform

deceleration of0.1 ms^{-2}. The total time of travel of the car is

A. 1050s

B. 1000s

C. 950s

D. 900s

Answer:

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41. 1. A stone tied to a string is rotated in a vertical circle. The minimum speed with which the string has to be rotated.

A. Decreases with increasing mass of the ston

B. Is independent of the mass of the stone

C. Decreases with increasing in len"gt"h of the string

D. Is independent of the len"gt"h of the string.

Answer:

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42. The maximum speed with which a car can be driven touqd a curve of radius 18 m without skidding {When g = $10ms^{-2}$ and the coefficient of friction between rubber tyres and the roadways is 0.2) is

A. $36.0kmh^{-1}$

B. $18.0kmh^{-1}$

C. $21.6kmh^{-1}$

D. $14.4kmh^{-1}$

Answer:

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43. For an electron circulating around the nucleus, the centripetal force is supplied by

A. Electromagnetic force

B. Electrostatic force

C. Gravitational force

D. Magnetic force

Answer:

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44. A particle is moving east wards with a velocity of $15ms^{-1}$. In a time of 10 s, the velocity changes to $15ms^{-1}$ northwards. Average acceleration during this time is (in ms^{-2})

A. $\frac{3}{\sqrt{2}}$ north-east

B. $\frac{3}{\sqrt{2}}$ north-east

C. $\frac{3}{\sqrt{2}}$ north-west

D. $3\sqrt{2}$ north - west

Answer:

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45. The reaction time for a car driver is 0.9 s. If the car travetling initially with $36kmh^{-1}$ is stopped by the driver after observing a signal

by the deceleration of $5ms-2$, the total distance travelled by the car befo1re coming to rest is

A. 19 m

B. 9 m

C. 10 m

D. 28 m

Answer:

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46. The angular velocity of the second's-hand ofa watch is

A. $0.053 rad s^{-1}$

B. $0.210 rad s^{-1}$

C. $0.105 rad s^{1}$

D. $0.42 rad s^{-1}$

Answer:

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47. The direction of velocity and acceleration of a projectile at the highest point on the trajectory are

A. Parallel to each other

B. Antiparallel to each other

C. Perpendicular to each other

D. No specific relationship exist between them

Answer:

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48. A bomb is dropped from an aircraft travelling horizontal at $150ms^{-1}$ at a height of 490 m. The horizontally distance travelled by the bomb before it hits the ground is (in metre)

A. 1000

B. 1200

C. 1500

D. 1800

Answer:

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49. The angle made by the vector $\vec{A} = \vec{i} + \vec{j}$ with x-axis is

A. 90°

B. 45°

C. 22.5°

D. 30°

Answer:

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50. A fan is making 600 rev/min. If it makes 1200 rev/min, what is the increllse in its angular velocity?

A. $10\pi rad/s$

B. $20\pi rad/s$

C. $60\pi rad/s$

D. $40\pi rad/s$

Answer:

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51. The angular velocity of a rickshaw wheel is $70 rads^{-1}$. If !he radius of the wheel is 0.5 m, the linear velocity is

A. $10 ms^{-1}$

B. $20 ms^{-1}$

C. $35 ms^{-1}$

D. $70 ms^{-1}$

Answer:

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52. If a particle tied to the end of string is set in circular motion then the tension of the string is

A. Always parallel to the velocity of the particle

B. Always perpendicular to the velocity of the particle

C. Perpendicular to the velocity of the particle only at one instant

D. Parallel to the velocity of the particle only at one instant

Answer:

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53. A motor cycle is travelling on a curved track of radius 500 m. If the coefficient of friction between the tyres and road is 0.5, with

$g = 10ms^{-2}$. What should be the maximum speed to avoid skidding

A. $500ms^{-1}$

B. $250ms^{-1}$

C. $50ms^{-1}$

D. $10ms^{-1}$

Answer:

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54. A body is projected vertically up with speed u takes time T to reach maximum height H. Pick out correct statement

A. It reaches H/2 distance in a time T/2

B. It has speed u at time T/2

C. It has speed u/2 at the height H/2

D. It has the same velocity at titrte 2T

Answer:

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55. The displacement of a particle moving in a straight line is given by $x = 2t^2 + t + 5$ where x is expressed in metre and t in second. The acceleration at t = 2 s is

A. $4ms^{-2}$

B. $8ms^{-2}$

C. $10ms^{-2}$

D. $15ms^{-2}$

Answer:

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56. A body falling for 2 s covers a distance a which is equal to that covered in next l s. If $g = 10ms^{-2}$, the distance s is

A. 30 m

B. 10 m

C. 60 m

D. 20 m

Answer:

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57. A stone tied to a string rotated with uniform speed in a vertical plane. If the mass of the stone is m, len"gt"h of string is r and the speed of the stone is v, the tension in the string when the stone is at its lowest point is (g = acceleration due to gravity

A. mg

B. $\frac{mv^2}{r}$

C. $\frac{mv^2}{r} - mg$

D. $\frac{mv^2}{r} + mg$

Answer:

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58. A 2 kg stone tied at the end of a string of l m len"gt"h, is whirled along a vertical circle at a constant speed of $4ms^{-1}$. The tension in the string has a value of 52 N when the stone is

A. At the top of the circle

B. Halfway down

C. At the bottom of the circle

D. None of the above

Answer:

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59. A body A starts from rest with an acceleration a_1. After 2 s another body B starts from rest with an acceleration ar If they travel

equal distance in the 5th second after the start of A. $a_1 : a_2$ is equal to

A. 5:9

B. 5:7

C. $9 : 5$

D. 9:7

Answer:

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60. In the following velocity-time graph, the distance travelled by the body, in metre is

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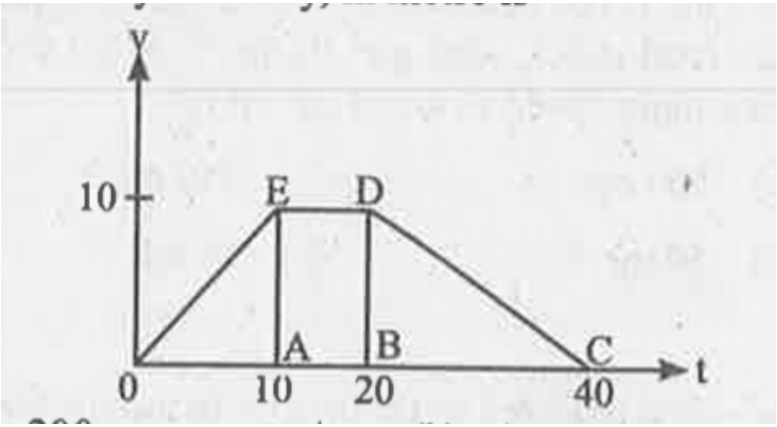

A. 200

B. 250

C. 300

D. 400

Answer:

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61. A person aiming to reach the exactly opposite point on the bank of a stream is swimming with a speed of $0.5ms^{-1}$ at an angle of 120° with the direction of flow of water. The speed of water in the stream, in ms^{-1} is ,

A. $1:0$

B. $\frac{1}{\sqrt{3}}$

C. 0.25

D. 0.433

Answer:

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62. If a unit vector is represented by $0.5\hat{i} + 0.8\hat{j} + c\hat{k}$,the value of c is

A. 1

B. $\sqrt{0.11}$

C. $\sqrt{0.011}$

D. $\sqrt{0.39}$

Answer:

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63. When two vectors $\vec{A}$ and $\vec{B}$ of magnitude a and b are added, the magnitude of the resultant vector is always

A. Equal to (a + b)

B. Less than (a + b)

C. Greater then

D. Not greater than (a+ b)

Answer:

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64. A ball is thrown vertically upwards with a speed of $10ms^{-1}$ from the top of a tower 200 m high and another is throwtl .vertically

downwards with the same speed simultaneously. The time difference between them in reaching the ground, in second, if g is taken as $10ms^{-2}$, is

A. 12

B. 6

C. 2

D. 1

Answer:

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65. vecA and vecB are vectors such that A +BI= I

A -B j. Then, the angle between them is

A. 90°

B. 40°

C. 45°

D. 0°

Answer:

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66. A very small particle rests on the top of a hemisphere of radius 20 cm. The smallest horizontal velocity to be given to it, if it is to leave the hemisphere without sliding down its surface, taking $g = 9.8ms^{-2}$

A. $1.4ms^{-1}$

B. $2.4ms^{-1}$

C. $0.4ms^{-1}$

D. $0.7ms^{-1}$

Answer:

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67. A particle starts moving from rest under uniformacceleration. It travels a distance x in the first two seconds anda distance of y in the next two seconds. If y = nx, then n=

A. 1

B. 2

C. 3

D. 4

Answer:

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68. The resuhant of the vectors A and B depends also on the angle θ between them.The magnitude of the resultant is always given by

A. $A + B + 2AB\cos\theta$

B. $\sqrt{A + B + 2AB\cos\theta}$

C. $\sqrt{A^2 + B^2 + 2AB\cos\theta}$

D. $\left(A^2 + B^2 + \cos\theta\right)^2$

Answer:

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69. The horizontal stream of H_2O leaves an opening in the side of a tank. If the opening is h metre above the ground, and the stream hits the ground D metre away and the acceleration due to gravity is g the speed of

H_2O as it leaves the tank in terms of g, h and D is

A. $D\left(\frac{g}{2h}\right)^{3/2}$

B. $D\left(\frac{g}{2}h\right)^{2}$

C. $D\left(\frac{g}{2}h\right)^{-1/2}$

D. $D\sqrt{\frac{g}{2h}}$

Answer:

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70. The banking angle for a curved road of radius 490 m for a vehicle moving at $35ms^{-1}$ is

A. $\tan^{-1}(0.25)$

B. $\tan^{-}1(0.55)$

C. $\tan^{-}1(0.45)$

D. $\tan^{-1}(0.75)$

Answer:

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71. Keeping the banking angle same, to increase the maximum speed with which a vehicle can travel on a curved road by 10 percent the radius of curvature of road has to be changed from 20 m to

A. 6 m

B. 18 m

C. 24.2 m

D. 30.5

Answer:

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72. A wooden block is dropped from the top of a cliff 100 m high. Simultaneously a bullet of mass 10 g is fired from the foot of the cliff upwards with a velocity of $100ms^{-1}$. The bullet and wooden block will meet each other after a time

A. 10 s

B. 0.5 s

C. 1 s

D. 7s

Answer:

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73. If $\vec{A}$, $\vec{B}$ are perpendicular vectors

$\because \vec{A} = 5\hat{i} + 7\hat{j} - 3\hat{k}$

$\because \vec{B} = 2\hat{i} + 2\hat{j} - c\hat{k}$. Value of c is

A. -2

B. 8

C. -7

D. -8

Answer:

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74. A body falling from rest has a velocity v after it falls through a distanc.e h. The distance it has to fall down further, for its velocity to become double, is ..... times h

A. 5 h

B. h

C. 5 h

D. 3 h

Answer:

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75. A body of mass m thrown horizontally with velocity v, from the fop of tower of height h, touches the level of ground at a distance of

250 m from the foot of the tower. A body of mass 2 m, thrown horizontally with velocity v/2, from top of the tower or'height 4 h will touch the level ground at a distance in meter from the foot of the tower is

A. 150m

B. 200

C. 250

D. 2500 m

Answer:

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76. A boat is moving with a velocity $3\hat{i} + 4\hat{j}$ with respect to (d) ground, the water in the river is moving with a velocity $-3\hat{i} - 4\hat{j}$ w.r.t. ground. The relative velocity of boat w.r.t. water is

A. $5\hat{i} + 6\hat{j}$

B. $6\hat{i} + 8\hat{j}$

C. $6\hat{j} + 6\hat{k}$

D. $5\hat{j} + 6\hat{k}$

Answer:

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