1. Starting from rest, a body slides down a 45o inclined plane in twice the time it takes to slide down the same distance in the absence of friction. The coefficient friction between the body an the inclined plane is

(1) 0.80

(2) 0.75

(3) 0.25

(4) 0.33

**(AIPMT1988)**

1. A body of mass 5 kg explodes at rest into three fragments with masses in the ratio 1 : 1 : 3. The fragments with equal masses fly in mutually perpendicular directions with speed of 21 m/s. The velocity of heaviest fragment in m/s will be

(1) 

(2) 

(3) 

(4) 

**(AIPMT1989)**

1. A 600 kg rocket is set for a vertical firing. If the exhaust speed is 100 ms1, the mass of the gas ejected per second to supply the thrust needed to overcome the weight of rocket is

(1) 117.6 kg s1

(2) 58.6 kg s1

(3) 6 kg s1

(4) 76.4 kg s1

**(AIPMT1990)**

1. A particle of mass m is moving with a uniform velocity 1. It is given an impulse such that its velocity becomes 2. The impulse is equal to

(1) m [|1|  |2|]

(2) 

(3) m [12]

(4) m [21]

**(AIPMT1990)**

1. Physical independence of force is a consequence of

(1) Third law of motion

(2) Second law of motion

(3) First law of motion

(4) All of these law

**(AIPMT1991)**

1. A heavy uniform chain lies on horizontal table top. If the coefficient of friction between the chain and the table surface is 0.25, then the maximum fraction of the length of the chain that can hang over one edge of the table is

(1) 20 %

(2) 25 %

(3) 35 %

(4) 15 %

**(AIPMT1991)**

1. When milk is churned, cream gets separated due to

(1) Centripetal force

(2) Centrifugal force

(3) Frictional force

(4) Gravitational force

**(AIPMT1991)**

1. Consider a car moving along a straight horizontal road with a speed of 72 km/h. If the coefficient of static friction between the tyres and the road is 0.5, the shortest distance in which the car can be stopped is

(Taking g = 10 m/s2)

(1) 30 m

(2) 40 m

(3) 72 m

(4) 20 m

**(AIPMT1992)**

1. A particle of mass M is moving in a horizontal circle of radius R with uniform speed V. When it moves from one point to a diametrically opposite point, its

(1) Kinetic energy changes by MV2/4

(2) Momentum does not change

(3) Momentum changes by 2MV

(4) Kinetic energy changes by MV2

**(AIPMT1992)**

1. A monkey is descending from the branch of a tree with constant acceleration. If the breaking strength is 75% of the weight of the monkey, the minimum acceleration with which monkey can slide down without breaking the branch is

(1) g

(2) 3g/4

(3) g/4

(4) g/2

**(AIPMT1993)**

1. A block has been placed on an inclined plane with slope angle , block slides down the plane at constant speed. The coefficient of kinetic friction is equal to

(1) sin 

(2) cos 

(3) g

(4) tan 

**(AIPMT1993)**

1. A satellite in a force free space sweeps stationary interplanetary dust at a rate (dM/dt) = . The acceleration of satellite is

(1) 

(2) 

(3) 

(4) 

**(AIPMT1994)**

1. If the force on a rocket moving with a velocity of 300 m/sec in 345 N, then the rate of combustion of fuel, is

(1) 0.55 kg/sec

(2) 0.75 kg/sec

(3) 1.15 kg/sec

(4) 2.25 kg/sec

**(AIPMT1995)**

1. What will be the maximum speed of a car on a road turn of radius 30 m if the coefficient if friction between the tyres and the road is 0.4 : (Take g = 9.8 m/s2)

(1)10.84 m/s

(2) 9.84 m/s

(3) 8.84 m/s

(4) 6.84 m/s

**(AIPMT1995)**

1. A ball of mass 150 g, moving with acceleration 20 m/s2, is hit by a force which acts on it for 0.1 sec. The impulse is

(1) 0.5 Ns

(2) 0.1 Ns

(3) 0.3 Ns

(4) 1.2 Ns

**(AIPMT1996)**

1. A man fires bullet of mass 200 g at a speed of 5m/s. The gun is of one kg mass. By what velocity the gun rebounds backward?

(1) 1 m/s

(2) 0.01 m/s

(3) 0.1 m/s

(4) 10 m/s

**(AIPMT1996)**

1. A bullet is fired from a gun. The force on the bullet is given by F = 600 – 2105 t where, F is in newton and t in second. The force on the bullet becomes zero as soon as it leaves the barrel. What is the average impulse imparted to the bullet?

(1) 1.8 N-s

(2) Zero

(3) 9 N-s

(4) 0.9 N-s

**(AIPMT1998)**

1. A 5000 kg rocket is set for vertical firing. The exhaust speed is 800 ms1. To give an initial upward acceleration of 20 ms2, the amount of gas ejected per second to supply the needed thrust will be : (g = 10 ms2)

(1) 127.5 kg s1

(2) 187.5 kg s1

(3) 185.5 kg s1

(4) 137.5 kg s1

**(AIPMT1998)**

1. A 10 N force is applied on a body produces acceleration of 1 m/s2. The mass if the body is

(1) 5 kg

(2) 10 kg

(3) 15 kg

(4) 20 kg

**(AIPMT1998)**

1. A mass of 1 kg is suspended by a thread. It is

(i) lifted up with an acceleration 4.9 m/s2

(ii) lowered with an acceleration 4.9 m/s2

The ratio of the tension is

(1) 3 : 1

(2) 1 : 2

(3) 1 : 3

(4) 2 : 1

**(AIPMT1998)**

1. A ball of mass 0.25 kg attached to the end of a string of length 1.96 m is moving in a horizontal circle. The string will break if the tension is more than 25 N. What is the maximum speed with which the ball can be moved?

(1) 14 m/s

(2) 3 m/s

(3) 3.92 m/s

(4) 5 m/s

**(AIPMT1998)**

1. A 500 kg car takes a round turn of radius 50 m with a velocity of 36 km/h. The centripetal force is

(1) 250 N

(2) 750 N

(3) 1000 N

(4) 1200 N

**(AIPMT1999)**

1. The force on a rocket moving with a velocity 300 m/s is 210 N. The rate of combustion of fuel of rocket is

(1) 0.7 kg/s

(2) 1.4 kg/s

(3) 0.07 kg/s

(4) 10.7 kg/s

**(AIPMT1999)**

1. A 3 kg ball strikes a heavy rigid wall with a speed of 10 m/s, at an angle of 60o. It gets reflected with the same speed and angle as shown here. If the ball is in contact with the wall for 0.20s, what is the average force exerted on the ball by the wall?

A drawing of a triangle with arrows and numbers

AI-generated content may be incorrect.(1) 150 N

(2) Zero

(3) 150N

(4) 300 N

**(AIPMT2000)**

1. Two blocks m1 = 5g and m2 = 10g are hung vertically over a light frictionless pulley as shown here. What is the acceleration of the masses when they are left free?

(where g is acceleration due to gravity)

A diagram of a machine

AI-generated content may be incorrect.(1) g/3

(2) g/2

(3) g

(4) g/5

**(AIPMT2000)**

1. A person slides freely down a frictionless inclined plane while his bas falls down vertically from the same height. The final speeds of the man (VM) and the bag (Vg) should be such that

(1) VM< VB

(2) VM = VB

(3) they depend on the masses

(4) VM> VB

**(AIPMT2000)**

1. A particle of mass 1 kg is thrown vertically upwards with speed 100 m/s. After 5s, it explodes into two parts. One part of mass 400 g comes back with speed 25 m/s, what is the speed of other part just after explosion?

(1) 100 m/s upwards

(2) 600 m/s upwards

(3) 100 m/s upwards

(4) 300 m/s upwards

**(AIPMT 2000)**

1. If a cricketer catches a ball of mass 150g moving with a velocity of 20 m/s. then he experiences a force of : (Time taken to complete the catch is 0.1 sec.)

(1) 300 N

(2) 30 N

(3) 3 N

(4) 0.3 N

**(AIPMT2001)**

1. A block of mass 1 kg is placed on a truck which accelerates with acceleration 5m/s2. The coefficient of static friction between the block and truck is 0.6. The frictional force acting on the block is

(1) 5 N

(2) 6 N

(3) 5.88 N

(4) 4.6 N

**(AIPMT2001)**

1. A 100 N force acts horizontally on a block of 10 kg placed on a horizontal rough surface of coefficient of friction = 0.5. If the acceleration due to gravity (g) is taken as 10 ms2, the acceleration of the block (in ms2) is

(1) 2.5

(2) 10

(3) 5

(4) 7.5

**(AIPMT2002)**

1. An object of mass 3 kg is at rest. If a force N is applied on the object, then the velocity of the object at t = 3s is

(1) 

(2) 

(3) 

(4) 

**(AIPMT2002)**

1. A lift of mass 1000 kg is moving upwards with an acceleration of 1m/s2. The tension developed in the string, which is connected to lift is (g = 9.8 m/s2)

(1) 9800 N

(2) 10800 N

(3) 11000 N

(4) 10000 N

**(AIPMT2002)**

1. A block of mass 10 kg is placed on a rough horizontal surface having coefficient of friction  = 0.5. If a horizontal force of 100 N is applied on it, then the acceleration of the block will be (Take g = 10 m/s2)

(1) 15 m/s2

(2) 10 m/s2

(3) 5 m/s2

(4) 0.5 m/s2

**(AIPMT2002)**

1. A man weighing 80 kg, stands on a weighing scale in alift which is moving upwards with a uniform acceleration of 5m/s2. What would be the reading on the scale?

(g = 10 m/s2)

(1) 1200 N

(2) Zero

(3) 400 N

(4) 800 N

**(AIPMT2003)**

1. A monkey of mass 20 kg is holding a vertical rope. The rope will not break when a mass of 25 kg is suspended from it but will break if the mass exceeds 25 kg. What is the maximum acceleration with which the monkey can climb up along the rope? (g = 10 m/s2)

(1) 2.5 m/s2

(2) 5 m/s2

(3) 10 m/s2

(4) 25 m/s2

**(AIPMT2003)**

1. The coefficient of static friction s between block A mass 2 kg and the table as shown in the figure is 0.2. What would be the maximum mass value of block B so that the two blocks do not move? The string and the pulley are assumed to be smooth and massless.

A diagram of a measurement

AI-generated content may be incorrect.

(1) 0.4 kg

(2) 2.0 kg

(3) 4.0 kg

(4) 0.2 kg

**(AIPMT2004)**

1. A block of mass m is placed on a smooth wedge of inclination . The whole system is accelerated horizontally so that block does not slip on the wedge. The force exerted by the wedge on the block (g is acceleration due to gravity) will be

(1) mg/cos 

(2) mg cos 

(3) mg sin 

(4) mg

**(AIPMT2004)**

1. A black and white image of a window

   AI-generated content may be incorrect.A 0.5 kg ball moving with speed of 12 m/s strikes a hard wall at an angle of 30o with the wall.It is reflected with the same speed and the same angle. If the ball is in contact with the wall for 0.25 seconds, the average force acting on the wall is

(1) 24 N

(2) 12 N

(3) 96 N

(4) 48 N

**(AIPMT2006)**

1. A block B is pushed momentarily along a horizontal surface with an initial velocity . If  isthe coefficient of sliding friction between B and the surface, block B will come to rest after a time

A black and white diagram

AI-generated content may be incorrect.

(1) g 

(2) g

(3) g

(4) g

**(AIPMT2007)**

1. Sand is being dropped on a conveyor belt at the rate of M kg/s. The force necessary to keep the belt moving the constant velocity of  m/s will be

(1) M newton

(2) 2 M newton

(3) newton

(4) Zero

**(AIPMT2008)**

1. Three forces acting on a body are shown in the figure. To have the resultant force only along the y-direction, the magnitude of the minimum additional forces needed is

A diagram of a straight line with arrows

AI-generated content may be incorrect.

(1) 0.5 N

(2) 1.5 N

(3) N

(4) N

**(AIPMT2008)**

1. A body under the action of a force, acquires an acceleration of 1 m/s2. The mass of this body must be

(1) 10 kg

(2) 20 kg

(3) 10kg

(4) 2kg

**(AIPMT2009)**

1. The mass of a lift is 2000 kg. When the tension in the supporting cable is 28000 N, then its acceleration is

(1) 4 ms2 upwards

(2) 4 ms2 downwards

(3) 14 ms2 upwards

(4) 30 ms2 downwards

**(AIPMT2009)**

1. An explosion blows a rock into three parts. Two parts go off at right angles to each other. These two are, 1 kg first part moving with a velocity of 12 ms1 and 2 kg second part moving with a velocity of 8 ms1. If the third part flies off with a velocity of 4 ms1, its mass would be

(1) 5 kg

(2) 7 kg

(3) 17 kg

(4) 3 kg

**(AIPMT2009)**

1. A block of mass m is in contact with the cart C as shown in the figure.

A diagram of a truck

AI-generated content may be incorrect.

The coefficient of static friction between the block and the cart is . The acceleration a of the cart that will prevent the block from falling satisfies

(1) 

(2) 

(3) 

(4) 

**(AIPMT2010)**

1. A gramophone record is revolving with an angular velocity . A coin is placed at a distance r from the centre of the record. The static coefficient of friction is . The coil will revolve with the record if

(1) 

(2) 

(3) 

(4) 

**(AIPMT2010)**

1. A man of 50 kg mass is standing in a gravity free space at a height of 10 m above the floor. He throws a stone of 0.5 kg mass downwards with a speed 2 ms1. When the stone reaches the floor, the distance of the man above the floor will be

(1) 9.9 m

(2) 10.1 m

(3) 10 m

(4) 20 m

**(AIPMT2010)**

1. A body of mass M hits normally a rigid wall with velocity V and bounces back with the same velocity. The impulse experienced by the body is

(1) MV

(2) 1.5 MV

(3) 2 MV

(4) Zero

**(AIPMT2011)**

1. A person of mass 60 kg is inside a lift of mass 940 kg and presses the button on control panel. The lift starts moving upwards with an acceleration 1.0 m/s2. If g = 10 ms2, the tension in the supporting cable is

(1) 8600 N

(2) 9680 N

(3) 11000 N

(4) 1200 N

**(AIPMT2011)**

1. The upper half of an inclined plane of inclination  is perfectly smooth while lower half is rough. A block starting from rest at the top of the plane will again come to rest at the bottom, if the coefficient of friction between the block and lower half of the plane is given by

(1) 

(2)  = 2 tan

(3)  = tan 

(4) 

**(AIPMT2011)**

1. A conveyor belt is moving at a constant speed of 2m/s. A box is gently dropped on it. The coefficient of friction between them is  = 0.5. The distance that the box will move relative to belt before coming to rest on it taking g = 10 ms2 is

(1) 1.2 m

(2) 0.6 m

(3) Zero

(4) 0.4 m

**(AIPMT2011)**

1. A stone is dropped from a height h. It hits the ground with a certain momentum p. If the same stone is dropped from a height 100% more than the previous height, the momentum when it hits the ground will change by

(1) 68 %

(2) 41 %

(3) 200 %

(4) 100 %

**(AIPMT2012)**

1. A car of mass kg negotiates a banked curve of radius 90 m on a frictionless road. If the banking angle is 45o, the speed of the car is

(1) 20 ms1

(2) 30 ms1

(3) 5 ms1

(4) 10 ms1

**(AIPMT2012)**

1. A car of mass m is moving on a level circular track of radius R. If s represents the static friction between the road and tyres of the car, the maximum speed of the car in circular motion is given by

(1) 

(2) 

(3) 

(4) 

**(AIPMT2012)**

1. Three blocks with masses m, 2m and 3m are connected by strings as shown in the figure. After an upward force F is applied on block m, the masses move upward at constant speed . What is the net force on the block of mass 2m?

(g is the acceleration due togravity)

A diagram of a diagram

AI-generated content may be incorrect.(1) 2 mg

(2) 3 mg

(3) 6 mg

(4) Zero

**(AIPMT2013)**

1. A car is moving in a circular horizontal track of radius 10m with a constant speed of 10 m/s. A bob is suspended from the roof of the car by a light wire of length 1.0 m. The angle made by the wire with the vertical is

(1) 0o

(2) 

(3) 

(4) 

**(NEET2013)**

1. An explosion breaks a rock into three parts in a horizontal plane. Two of them go off at right angles to each other. The first part of mass 1 kg moves with a speed of 12 ms1 and the second part of mass 2 kg moves with 8 ms1 speed. If the third part flies off with 4 ms1 speed, then it mass is

(1) 3 kg

(2) 5 kg

(3) 7 kg

(4) 17 kg

**(NEET2013)**

1. The force ‘F’ acting on a particle of mass ‘m’ is indicated by the force time graph shown below. The change in momentum of the particle over the time interval from zero to 8s is

A line of a square and a rectangle

AI-generated content may be incorrect.

(1) 24 Ns

(2) 20 Ns

(3) 12 Ns

(4) 6 Ns

**(NEET2014)**

1. A system consists of three masses m1, m2 and m3 connected by a string passing over a pulley P. The mass m1 hangs freely and m2 and m3 are on a rough horizontal table (the coefficient of friction = ). The pulley is frictionless and of negligible mass. The downward acceleration of mass m1 is

(Assume m1 = m2 = m3 = m)

A diagram of a diagram of a diagram

AI-generated content may be incorrect.(1) 

(2) 

(3) 

(4) 

**(NEET2014)**

1. A ballon with mass ‘m’ is descending down with an acceleration ‘a’ (where a < g). How much mass should be removed from it so that it starts moving up with an acceleration ‘a’?

(1) 

(2) 

(3) 

(4) 

**(NEET2014)**

1. Three blocks A, B and C of masses 4 kg, 2 kg and 1 kg respectively, are in contact on a frictionless surface, as shown. If a force of 14 N is applied on the 4 kg block then the contact force between A and B is

A white square with black letters

AI-generated content may be incorrect.

(1) 6 N

(2) 8 N

(3) 18 N

(4) 2 N

**(NEET2015)**

1. A block A of mass m1 rests on a horizontal table. A light string connected to it passes over a frictionless pulley at the edge of table and from its other end another block B of mass m2 is suspended. The coefficient of kinetic friction between the block and the table is k. When the block A is sliding on the table, the tension in the string is

(1) 

(2) 

(3) 

(4) 

**(NEET2015)**

1. A plank with a box on it at one end is gradually raised about the other end. As the angle of inclination with the horizontal reaches 30o, the box starts to slip and slides 4.0 m down the plank in 4.0 s. The coefficients of static and kinetic friction between the box and the plank will be, respectively

A diagram of a line with a square and a line

AI-generated content may be incorrect.

(1) 0.6 and 0.5

(2) 0.5 and 0.6

(3) 0.4 and 0.3

(4) 0.6 and 0.6

**(NEET2015)**

1. Two stones of masses m and 2m are whirled in horizontal circles, the heavier one in radius  and the lighter one in radius r. The tangential speed of lighter stone is n times that of the value of heavier stone when they experience same centripetal forces. The value of n is

(1) 3

(2) 4

(3) 1

(4) 2

**(NEET2015)**

1. A lift weighting 1000 kg is moving upward with an acceleration of 1 m/s2. The tension in the supporting cable is

(1) 980 N

(2) 10800 N

(3) 9800 N

(4) 8800 N

**(NEET2016)**

1. A car is negotiating a curved road of radius R. The roads is banked at an angle , the coefficient of friction between the tyers of the car and the road is s. The maximum safe velocity on this road is

(1) 

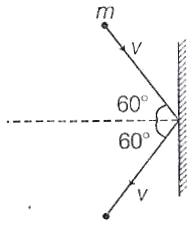
(2) 

(3) 

(4) 

**(NEET2016)**

1. A rigid ball of mass m strikes a rigid wall at 60o and gets reflected without loss of speed as shown in the figure. The value of impulse imparted by the wall on the ball will be



(1) mv

(2) 2 mv

(3) mv/2

(4) mv/3

**(NEET2016)**

1. A bullet of mass 10g moving horizontal with a velocity of 400 m/s strikes a wood block of mass 2 kg which is suspended by light inextensible string of length 5 m. As result, the centre of gravity of the block found to rise a vertical distance of 10 cm. The speed of the bullet after it emerges of horizontally from the block will be

(1) 100 m/s

(2) 80 m/s

(3) 120 m/s

(4) 160 m/s

**(NEET2016)**

1. A black and white drawing of a coil and a square

   AI-generated content may be incorrect.Two blocks A and B of masses 3m and m respectively are connected by a massless and inextensible string. The whole system is suspended by a massless spring as shown in figure. The magnitudes of acceleration of A and B immediately after the string is cut, are respectively

(1) , g

(2) g , g

(3) , 

(4) g ,

**(NEET2017)**

1. One end of the string of length l is connected to a particle of mass m and the other end is connected to a small peg on a smooth horizontal table. If the particle moves in circle with speed v the net force on the particle (directed towards center) will be (T represents the tension in the string)

(1) T

(2) 

(3) 

(4) Zero

**(NEET2017)**

1. Which one of the following statements is incorrect?

(1) Rolling friction is smaller than sliding friction.

(2) Limiting value of static friction is directly proportional to normal reaction.

(3) Coefficient of sliding friction has dimensions of length.

(4) Frictional force opposes the relative motion.

**(NEET2018)**

1. A block of mass m is placed on a smooth inclined wedge ABC of inclination  as shown in the figure.The wedge is given an acceleration ‘a’ towards the right. The relation between a and p for the block to remains stationary on the wedgeis

A triangle with a triangle and a triangle with a triangle and a triangle with a triangle and a triangle with a triangle and a triangle with a triangle and a triangle with a triangle and a triangle with

AI-generated content may be incorrect.

(1) 

(2) 

(3) a = g tan 

(4) a = g cos 

**(NEET2018)**

1. A particle moving with velocity is acted by three forces shown by the vector triangle PQR. The velocity of the particle will

A black triangle with arrows

AI-generated content may be incorrect.

(1) Increase

(2) Decrease

(3) Remain constant

(4) Change according to the smallest force

**(NEET2019)**

1. A body of mass m is kept on a rough horizontal surface (coefficient of friction = ). A horizontal force is applied on the body, but it does not move. The resultant normal reaction and the frictional force acting on the object is given by F, where F is

(1) 

(2) 

(3) 

(4) 

**(NEET2019)**

1. A block of mass 10 kg is in contact against the inner wall of a hallow cylindrical drum of radius 1 m. The coefficient of friction between the block and the inner wall of the cylinder is 0.1. The minimum angular velocity needed for the cylinder to keep the block stationary when the cylinder is vertical and rotating about its axis, will be(g = 10 m/s2)

(1) 

(2) 

(3) 10 rad/s

(4) 10  rad/s

**(NEET2019)**

1. An object flying in air with velocitysuddenly breaks in two pieces whose masses are in the ratio 1 : 5. The smaller mass flies off with a velocity . The velocity of the larger piece will be

(1) 

(2) 

(3) 

(4) 

**(NEET2019)**

1. Two particles A and B are moving in uniform circular motion in concentric circles of radii rA and rB with speed vA and vB, respectively. Their time period of rotation is the same. The ratio of angular speed of A to that of B will be

(1) vA :vB

(2) rB :vA

(3) 1 : 1

(4) rA :rB

**(NEET2019)**

1. Two bodies of mass 4 kg and 6 kg are tied to the ends of a massless string. The string passes over a pulley which is frictionless (see figure). The acceleration of the system in terms of acceleration due to gravity (g) is

A diagram of a weighting machine

AI-generated content may be incorrect.

(1) g/2

(2) g/5

(3) g/10

(4) g

**(NEET2020)**

1. A point mass ‘m’ is moved in a vertical circle of radius ‘r’ with the help of a string. The velocity of the mass is  at the lowest point. The tension in the string at the lowest point is

(1) 1 mg

(2) 6 mg

(3) 7 mg

(4) 8 mg

**(NEET2020)**

1. A truck is stationary and has a bob suspended by a light string, in a frame attached to the truck. The truck, suddenly moves to the right with an acceleration of a. The pendulum will tilt

(1) To the left and the angle of inclination of the pendulum with the vertical is .

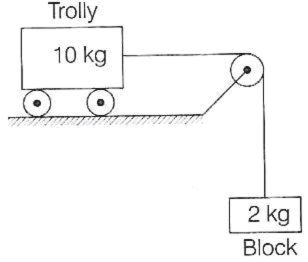
(2) To the left and the angle of inclination of the pendulum with the vertical is .

(3) To the left and the angle of inclination of the pendulum with the vertical is .

(4) To the left and the angle of inclination of the pendulum with the vertical is .

**(NEET2020)**

1. Calculate the acceleration of the block and trolly system shown in the figure. The coefficient of kinetic friction between the trolly and the surface is 0.05. (g = 10 m/s2, mass of the string is negligible and no other friction exists).



(1) 1.25 m/s2

(2) 1.50 m/s2

(3) 1.66 m/s2

(4) 1.00 m/s2

**(NEET2021)**

1. A ball of mass 0.15 kg is dropped from a height 10 m, strikes the ground and rebound to the same height. The magnitude of impulse imparted to the ball is(g = 10 m/s2) nearly

(1) 1.4 kg m/s

(2) 0 kg m/s

(3) 4.2 kg m/s

(4) 2.1 kg m/s

**(NEET2021)**

1. A small block slides down on a smooth inclined plane, starting from rest at time t = 0. Let sn be the distance travelled by the block in the interval t = n – 1 to t = n. Then, the ratio  is

(1) 

(2) 

(3) 

(4) 

**(NEET2021)**

1. A football player is moving southward and suddenly turns eastward with the same speed to avoid an opponent. The force that acts on the player while turning is

(1) Along northward

(2) Along north-east

(3) Along south-west

(4) Along east-ward

**(NEET2023)**

1. Calculate the maximum acceleration of a moving car so that a body lying on the floor of the car remains stationary. The coefficient of static friction between the body and the floor is 0.15 : (g = 10 m s2)

(1) 150 m s2

(2) 1.5 m s2

(3) 50 m s2

(4) 1.2 m s2

**(NEET2023)**

1. A horizontal force 10 N is applied to a block A as shown in figure. The mass of blocks A and B are 2 kg and 3 kg respectively. The blocks slide over a frictionless surface. The force exerted by block A on block B is

A diagram of a box with a weight and a weight

AI-generated content may be incorrect.

(1) 6 N

(2) 10 N

(3) Zero

(4) 4 N

**(NEET2024)**

1. A bob is whirled in a horizontal plane by means of a string with an initial speed of  rpm. The tension in the string is T. If speed becomes 2 while keeping the same radius, the tension in the string becomes

(1) 

(2) 

(3) T

(4) 4 T

**(NEET2024)**

1. A wheel of a bullock cart is rolling on a level road as shown in the figure below. If its linear speed is v in the direction shown, which one of the following options is correct (P and Q are any highest and lowest points on the wheel, respectively)?

A diagram of a circle with a circle and a line

AI-generated content may be incorrect.

(1) Point P moves slower than point Q.

(2) Point P moves faster than point Q.

(3) Both the points P and Q move with equal speed.

(4) Point P has zero speed.

**(NEET2024)**