Sr. No.	Question	A	B	C	D	ans
1	When two bodies of weights W1 and W2 (with W1 > W2) connected by a string passing over a smooth pulley , W1 being suspended freely and W2 lying on smooth inclined plane with inclination angle a, the tension T in the string is given by	$W_1 W_2(1+ \sin a) / 2 (W_1 + W_2)$	$W_1 W_2 (1+ \sin a) / (W_1 + W_2)$	$W_1 W_2 / (W_1 + W_2)$	none of the above	**b**
2	A body of weight 80 N is being pulled by another body of weight 50 N along a smooth horizontal plane with the help of smooth pulley and a string arrangement. Weight 50 N is resting on a horizontal floor and 80N is being suspended freely. The tension T in this case would be	30.8N	35.8N	40.8N	45.8N	**a**
3	An elevator has a downward acceleration of 1.5 m/ s^2 .Find pressure transmitted by a man of mass 60 kg travelling in the lift.	490.6N	492.6N	494.6N	498.6N	**d**
4	An elevator has an upward acceleration of 1.5 m/ s^2. Find pressure transmitted by a man of mass 60 kg travelling in the lift.	672.6 N	675.6 N	678.6 N	681.6 N	**c**
5	Determine the force necessary to produce an acceleration of 4 m/ s^2 in a mass of 250 kg.	900N	1000N	1200N	1300N	**b**
6	A body of mass 160 kg is made to move with a velocity of 20 m/s when a force of 80 N acts on it for 60 seconds. Determine the acceleration of the body.	0.25 m/ s^2	0.50 m/ s^2	0.75 m/ s^2	1.00 m/ s^2	**b**
7	A body of mass 160 kg is made to move with a velocity of 20 m/s when a force of 80 N acts on it for 60 seconds. Determine the velocity attained at the end of 60 seconds if force acts in the direction of the motion.	50 m/s	75 m/s	100 m/s	125 m/s	**a**
8	A body of mass 160 kg is made to move with a velocity of 20 m/s when a force of 80 N acts on it for 60 seconds. Determine the velocity attained at the end of 60 seconds if force acts in the opposite direction of the motion.	– 5 m/s	– 10 m/s	-15 m/s	non of the above	**b**
9	A block of mass m is moving up a plane making an angle θ with horizontal. The acceleration of the block is 'a' If there is no friction between the block and the plane surface the pulling force required in the direction of motion is	zero	(mgcos θ + ma)	(mgsin θ + ma)	None of the above.	**c**
10	A block of mass m is moving down a plane making an angle θ with horizontal. The acceleration of the block is a. If there is no friction between the block and the plane surface, the pulling force required in the direction of motion is	(ma - mgsin θ)	(mgcos θ + ma)	(mgsin θ + ma)	None of the above.	**a**
11	A block of mass m is moving up a plane making an angle θ with horizontal. The acceleration of the block is a. If the co-efficient of friction between the block and the plane surface is μ, the pulling force required in the direction of motion is	Zero	(μmgcos θ + ma)	(mgsin θ + ma + μmgcos θ)	None of the above.	**c**
12	A block of mass m is moving down a plane making an angle θ with horizontal. The acceleration of the block is a. If the co-efficient of friction between the block and the plane surface is μ, the pulling force required in the direction of motion is	(μmgsin θ - ma)	(-mgsin θ + ma + μmgcos θ)	(mgsin θ + ma)	None of the above.	**b**
13	A block of mass m is moving down a plane making an angle θ with horizontal under the action of self weight. If there is no friction between the block and the plane surface, the acceleration of the block is a.	zero	gcos θ	gsin θ	None of the above.	**c**
14	A block of mass m is moving up a plane making an angle θ with horizontal. The block is pulled up with a force mgsin θ. If there is no friction between the block and the plane surface, The acceleration of the block is a. is	zero	gcos θ	gsin θ	None of the above.	**a**
15	A block of mass 10 kg is pulled by a force of 10 N in the direction making an angle of 60˚with horizontal. The acceleration of the block in m/s^2 is	zero	1	0.5	None of the above.	**c**

Sr. No.	Question	A	B	C	D	ans
16	A horizontal force expressed as F(N) = 10 t2 – 4t + 6 where t is in s., acts on a block of mass 2kg. The acceleration of the block in m/s2 after 1 s. is	zero	6	5	None of the above.	**b**
17	A block of mass 2 kg is acted upon by a constant force inducing acceleration of 2.5 m/s^2. If the same force acts on an object having a mass of 5 kg, the acceleration induced in m/s^2 is	6.25	1	zero	None of the above.	**b**
18	An object of mass 3 kg has a component of 3 m/s^2 in X direction and component of 4 m/s^2 in Y direction. The magnitude of total force producing this acceleration in N	15	5	21	None of the above.	**a**
19	A truck starts from rest with an acceleration 'a'. A box of mass 30 kg is kept on the truck. The co-efficient of friction between the box and the truck bed is μ is 0.1. The box will slip on the truck bed if the acceleration in m/s^2 equals or exceeds	g	0.1g	3g	None of the above.	**b**
20	A man having a mass of 50 kg stands in an elevator. The reactive force acting on the man's feet by the elevator floor, if the elevator accelerates upwards at 2 m/s^2.	390.5 N	490.5 N	590.5 N	Non of the above	**c**
21	A man having a mass of 50 kg stands in an elevator. The reactive force acting on the man's feet by the elevator floor, if the elevator accelerates downwards at 2 m/s^2.	390.5 N	490.5 N	590.5 N	Non of the above	**a**
22	A man having a mass of 50 kg stands in an elevator. The reactive force acting on the man's feet by the elevator floor, if the elevator moves upwards at a constant velocity of 1 m/s.	Zero	490.5	590.5	Non of the above	**b**
23	A man having a mass of 50 kg stands in an elevator. The reactive force acting on the man's feet by the elevator floor, if the elevator moves downwards at a constant velocity of 1 m/s.	390.5 N	490.5 N	590.5 N	Non of the above	**b**
24	For a rectilinear motion of a particle of a mass m with acceleration a, the radial component of force inducing motion is equal to	Zero	ma	ma/2	Non of the above	**a**
25	For a rectilinear motion of a particle of a mass m with acceleration a, the tangential component of force inducing motion is equal to	Zero	ma	ma/2	Non of the above	**b**
26	A body of mass 400 kg starts from rest and moves along a straight line under an influencing force which varies as square of time. Force reaches to a value of 400 N in 15 s from start. Calculate the velocity at the end of tenth s	1.48	2.48	3.48	4.48	**a**
27	A boy of mass 50 kg stands in a lift. Determine the force exerted by the boy on the floor of the lift when the lift moves up with a constant acceleration of 2 m/ s^2	500	590	100	1090	**b**
28	A boy of mass 50 kg stands in a lift. Determine the force exerted by the boy on the floor of the lift when the lift moves down with a constant acceleration of 2 m/ s^2	200	290	300	390	**d**
29	A boy of mass 50 kg stands in a lift. Determine the force exerted by the boy on the floor of the lift when the lift moves down with a constant acceleration of 9.81 m/ s^2	Zero	290	300	390	**a**
30	A man moves a crate by pushing horizontally against it until it slides on the floor. If μ_s= 0.5 and μ_k =0.4. With what acceleration does the crate begin to move. Assume force exerted by the man at impending motion is maintained when sliding begins.	0.25g	0.2g	0.3g	0.1g	**d**

Sr. No.	Question	A	B	C	D	ans
31	A train with twenty coaches has a total mass of 1200 tonnes. Its speed is 72 km/h when it is at the bottom of one percent grade. If the draw bar pull is 80 kN and tractive resistance is 30 N per tones mass what is its acceleration?	- 0.0712 m/s2	- 0.0515 m/s^2	- 0.0613 m/s2	- 0.0513 m/s^2	**c**
32	A train with twenty coaches has a total mass of 1200 tonnes. Its speed is 72 km/h when it is at the bottom of one percent grade. If the draw bar pull is 80 kN and tractive resistance is 30 N per tones mass what is speed of train at the end of grade 1.5 km long?	58.98 kmph	52.99 kmph	55.90 kmph	50.99 kmph	**b**
33	The force applied on a body of mass 100 kg to produce an acceleration of 5 m / s^2, is	20 N	100 N	500 N	400 N	**c**
34	A lift moves downwards with an acceleration of 9.8 m / s^2 The pressure exerted by a man on the floor of the lift is	5 N	0 N	9.81 N	4.09 N	**b**
35	A man with a capacity to apply a push force of 265 N rolls a barrel of mass 90 kg into a vehicle which is 1 m above the ground level. What will be the work done by that man?	875 N-m	883 N-m	891 N-m	899 N-m	**b**
36	A package weighing 90 N is projected up an incline with angle of 25° with initial velocity of 7.4 m/s. Determine the maximum distance "x" , the package will move up that incline.	4.5 m	4.57 m	5 m	6.6m	**d**
37	A package weighing 90 N is projected up an incline with angle of 25° with initial velocity of 7.4 m/s. Determine the velocity when the package returns the initial position.	4.5 m/s	4.57 m/s	7.4 m/s	5 m/s	**c**
38	A body of mass 200 kg is found to move with a velocity of 20 m/s when a force of 100 N acts on it for 90 seconds. Determine the velocity of the body when the force acts in the direction of motion.	50 m/s	- 20 m/s	20 m/s	- 70 m/s	**c**
39	A wagon weighing 500 kN starts from rest, runs 30 m down a 1% grade and strikes a bumper post. The rolling resistance of the track is 5N / kN , find the velocity with which the wagon strikes the post	1.716 m/s	2.716 m/s	3.716 m/s	4.716 m/s	**a**
40	A wagon weighing 500 kN starts from rest, runs 30 m down a 1% grade and strikes a bumper post. The rolling resistance of the track is 5N / kN . The bumper spring compresses 1 mm for every 5 kN determine the total compression.	25 mm	50mm	75mm	100mm	**d**
41	A track is proceeding up along 3% grade at constant speed of 60km/h. If the driver does not change gears what will be the acceleration as track starts moving on a level stion of the road.	0.394 m/s^2	0.294 m/s^2	0.295 m/s^2	0.391 m/s^2	**b**
42	A track is proceeding up along 4% grade at constant speed of 72km/h. If the driver does not change gears what will be the acceleration as track starts moving on a level stion of the road.	0.3924 m/s^2	0.3 m/s^2	0.295 m/s^2	0.391 m/s^2	**a**
43	A body of mass `m`is projected up a 25^0 inclined plane with an initial velocity of 15m/s.If the coefficient of friction $\mu_k = 0.25$. Determine how far the body will move up the plane	15 m	17.66 m	1.766 m	20 m	**b**
44	A body of mass `m`is projected up a 25^0 inclined plane with an initial velocity of 15m/s.If the coefficient of friction $\mu_k = 0.25$. Determine the time required to reach the highest point	2.355 s	2 s	2.5 s	3 s	**a**
45	The 50 Kg crate is projected along the floor with initial speed of 7m/s at x=0.The coefficient of kinetic friction $\mu_k = 0.4$ .Calculate distance x traveled by the crate while it comes to rest.	6.244 m	3.122 m	4.666 m	4.222 m	**a**

Sr. No.	Question	A	B	C	D	ans
46	A hockey player hits a puck so that it comes to rest in 9 seconds after sliding 30 meters horizontally on the ice. Determine the coefficient of friction between the pluk and ice.	0.055	0.3	0.0755	0.4	**c**
47	A car is traveling up a long grade at a constant velocity. If the driver does not change the setting of the throttle or shift gears as the car reaches the top of the grade, what will be the acceleration of the car as it starts moving down the 2% grade followed immediately after the 3%up grade?	0.9815 m/s^2	0.4905 m/s^2	9.815 m/s^2	0.1962 m/s^2	**d**
48	A force of unknown magnitude acts on a body of mass 150 kg and produces an acceleration of 3m/s² in the direction of force. Find the force	450 N	350 N	500 N	400 N	**a**
49	A force of 100 N acts on abody having mass of 4 kg for 10 seconds. If the initial velocity of the body is 5 m/s find acceleration produced in the direction of the of force.	20 m / s²	25m / s²	50 m / s²	12.5 m / s²	**b**
50	A force of 100 N acts on abody having mass of 4 kg for 10 seconds. If the initial velocity of the body is 5 m/s find distance moved by the body in 10 seconds.	1100 m	1200 m	1000m	1300 m	**d**
51	The weight of a body on earth is 980 N. If the acceleration due to gravity on earth is 9.80 m/s², what will be weight of the body on moon where gravitational acceleration is 1.6 m/s²	980 N	490 N	160 N	0 N	**c**
52	The weight of a body on earth is 980 N. If the acceleration due to gravity on earth is 9.80 m/s², what will be weight of the body on the sun where gravitational acceleration is 270 m/s²	27000 N	980 N	0 N	490 N	**a**
53	A force of 200 N acts on a body having mass of 300 kg for 90 seconds. If the initial velocity of the body is 20 m/s determine the final velocity of the body when the force acts in the direction of motion.	60 m/s	20 m/s	80 m/s	none of the above	**c**
54	A force of 200 N acts on a body having mass of 300 kg for 90 seconds. If the initial velocity of the body is 20 m/s determine the final velocity of the body when the force acts in the opposite direction of motion.	20 m/s	80 m/s	60 m/s	-40 m/s	**d**
55	A body of weight 200 N is initially stationary on a 45° inclined plane. Determine the acceleration of the body if $\mu_k = 0.1$ between the body and the plane	6.242 m / s²	3.242 m / s²	4 m / s²	9.81 m / s²	**a**
56	A body of weight 200 N is initially stationary on a 45° inclined plane. Determine thedistance travelled by the body on the inclined plane before it reaches a speed of 2 m/s if $\mu_k = 0.1$ between the body and the plane	0.26 m	0.32 m	0.6 m	0.45 m	**b**
57	Two bodies of weight 50 N and 30 N are connected to the two ends of a light inextensible string. The string is passing over a smooth pulley. Determine the acceteration of the system	3m / s²	1.25 m / s²	6.242 m / s²	0.25 m / s²	**d**
58	Two bodies of weight 50 N and 30 N are connected to the two ends of a light inextensible string. The string is passing over a smooth pulley. Determine the tension in the string	37.5 N	18.75 N	9.81 N	25 N	**b**
59	A train of mass 20000 kg is moving at 10 kmph and after 20 seconds it is moving at 50 kmph. What is the average force acting upon it during this time in the direction of motion	1.11 kN	1111 N	11.11 kN	none of the above	**c**
60	An electric train travelling at 36 knph is pulled up gradually, the retardation being 0.5 m / s². If the retarding force is 600 kN what is the mass of train	1200000 kg	120000 kg	9810000 kg	none of the above	**a**

Sr. No.	Question	A	B	C	D	ans
61	Two bodies of mass 80 kg and 20 kg are connected by a thread and move along a rough horizontal surface under the action of a force 400 N applied to the first body of mass 80 kg. The coefficient of friction between sliding surfaces is 0.3. Determine acceleration of the two bodies.	1.057 m / s²	-2.057 m / s²	2.057 m / s²	none of the above	**a**
62	An elevator of mass 900 kg when empty is lifted or lowered vertically by means of a wire rope. A man of mass 72.5 kg is standing in it. The tension in the rope when the lift is moving up with an acceleration of 3m / s² is	9810 N	711.225 N	12458 N	8829 N	**c**
63	An elevator of mass 900 kg when empty is lifted or lowered vertically by means of a wire rope. A man of mass 72.5 kg is standing in it. The tension in the rope when the lift is moving down with an uniform velocityof 3m / s is	9810 N	9540 N	8829 N	12458 N	**b**
64	A body of mass 200 kg is found to move with a velocity of 20 m/s when a force of 100 N acts on it for 90 seconds. Determine the velocity of the body when the force acts in the opposite direction of motion.	-20 m/s	20 m/s	70 m/s	-70 m/s	**a**
65	An automobile weighing 20 kN is driven down a 5° inclination at a speed of 60 kmph when the brakes are applied causing a constant total braking force of 7.5 kN. The distance travelled by the automobile as it comes to rest is	4.918 m	49.18 m	98.36 m	none of the above	**b**
66	A car moving on a straight level road skidded for a total distance of 76.8 m after the brakes were applied. Determine the speed of the car just before the brakes were applied if coefficient of friction between the road and the tyre is 0.35	22.97 m/s	2.297 m/s	20 m/s	none of the above	**a**
67	What maximum speed a jeep can attain over a distance of 100 m starting from rest, if the coefficient of friction between the road and the tyres is 0.65 and the jeep is a four wheel drive	23.67 m/s^2	39.67 m/s^2	35.69 m/s^2	29.86 m/s^2	**c**
68	What maximum speed a jeep can attain over a distance of 100 m starting from rest, if the coefficient of friction between the road and the tyres is 0.65 and the jeep is a front wheel drive with 70% of total weight being transferred to front wheels	29.86 m/s^2	35.69 m/s^2	19.55 m/s^2	23.67 m/s^2	**a**
69	What maximum speed a jeep can attain over a distance of 100 m starting from rest, if the coefficient of friction between the road and the tyres is 0.65 and the jeep is a rear wheel drive with 30% of total weight being transferred to front wheels	29.86 m/s^2	35.69 m/s^2	23.67 m/s^2	19.55 m/s^2	**d**
70	1 Newton force is equal to	1 kg m/s^2	1 dyne gm/cm^2	1 lb $/in^2$	1 tonne m/s^2	**a**
71	In SI system unit of force is	Newton	Dyne	Pound	kg-force	**a**
72	A 50 kg box is pushed to slide along a horizontal floor with an initial speed of 4 m/s. If $\mu_k = 0.3$, find the time required for the box to come to rest	1 s	1.361 s	2 s	3 s	**b**
73	A 50 kg box is pushed to slide along a horizontal floor with an initial speed of 4 m/s. If $\mu_k = 0.3$, find the distance travelled by the box before coming to rest	1.36 m	2 m	2.72 m	none of the above	**c**
74	A body of mass 0.5 kg moves with a constant speed of 4 m/s around a horizontal circle of radius 1m. Determine the magnitude of horizontal force acting on body towards the centre of circle is	2 N	4 N	6 N	8 N	**d**
75	A body of mass 1 kg moves with a constant speed of 4 m/s around a horizontal circle of radius 4 m. Determine the magnitude of horizontal force acting on body towards the centre of circle is	2 N	4 N	6 N	8 N	**b**

Sr. No.	Question	A	B	C	D	ans
76	A body of mass 100 gm moves with constant angular speed around a circle of radius 0.50 m in horizontal plane. If the body completes 50 revolution in 3 minutes, the magnitude of horizontal force acting on the body towards the centre of circle is	0.125 N	0.152 N	0.345 N	0.654 N	**b**
77	A body of mass 1 kg moves with constant angular speed around a circle of radius 0.50 m in horizontal plane. If the body completes 50 revolution in 3 minutes, the magnitude of horizontal force acting on the body towards the centre of circle is	1.25 N	1.52 N	3.45 N	6.54 N	**b**
78	A body is placed on a horizontal disc at a point which is 0.15 m from the centre of disc when the disc rotates at 30 rev/min, the body is just on the point of slipping. The coefficient of friction between the body and disc surface is	0.151	0.156	0.511	0.345	**a**
79	A body is placed on a horizontal disc at a point which is 0.1 m from the centre of disc when the disc rotates at 60 rev/min, the body is just on the point of slipping. The coefficient of friction between the body and disc surface is	0.1	0.2	0.3	0.4	**d**
80	A small ball of mass 5 kg is made to revolve in a horizontal circle, (length of cord attached to ball is 2 m) knowing that maximum tension in cord is 100 N, determine the angle made by cord with vertical at ball velocity of 5 m/s.	40.14 degree	60.6 degree	66 degree	54.3degree	**a**
81	A small ball of mass 10 kg is made to revolve in a horizontal circle, (length of cord attached to ball is 2 m) knowing that maximum tension in cord is 200 N, determine the angle made by cord with vertical at ball velocity of 5 m/s.	69.6 degree	60.6 degree	66 degree	40.14 degree	**d**
82	Newton's sond law can be written as mathematically, $\sum$ Fn = man, within the summation of forces $\sum$F------ are (is) included.	External forces	Weight	Internal force	All of above	**d**
83	$\sum F_n = ma_n$, equation of motion along	Tangential direction	Radial direction	Transverse direction	Normal direction	**d**
84	Equation of motion in normal direction is written as $\sum F_n = ma_n$, where $\sum F_n$ is referred to as the ------	Impulse	Normal force	Tangential force	Inertial force	**b**
85	Equation of motion in normal direction is written as $\sum F_n = ma_n$, where a_n is referred as	Tangential component of acceleration	Transverse component of acceleration	Total acceleration	Normal component of acceleration	**d**
86	In path coordinate, frictional force always acts along	Normal direction	Tangential direction	a and b	None of above	**c**
87	When a car moves over a hump, the pressure exerted by the wheels on the road is	Same as that on the level road	Greater than that on the level road	Less than that on the level road	Zero	**c**
88	When a car moves over a trough, the pressure exerted by the wheels on the road is	Same as that on the level road	Greater than that on the level road	Less than that on the level road	Zero	**b**
89	When a stone tied to one end of a string is whirled in a verticle circle, the tension in a string is maximum at	The lowest point	The highest point	The mid point	45 degree to verticle	**a**
90	When a stone tied to one end of a string is whirled in a verticle circle, the tension in a string is minimum at	The lowest point	The highest point	The mid point	45 degree to verticle	**b**
91	The equation of motion along normal direction is	$\sum F_n = ma_n$	$\sum F_n = mv^2/\rho$	Both a and b	None of these	**c**
92	The equation of motion along tangential direction is	$\sum F_t = ma_t$	$\sum F_t = mdv/dt$	$\sum F_t = mvdv/\rho ds$	a, b and c	**d**
93	$\sum F_t = mvdv/\rho ds$, equation of motion along	Normal direction	Tangential direction	Both a and b	None of these	**b**
94	$\sum F_t = mdv/dt$, equation of motion along	Normal direction	Tangential direction	Both a and b	None of these	**b**
95	$\sum F_n = mv^2/\rho$, equation of motion along	Normal direction	Tangential direction	Both a and b	None of these	**a**

Sr. No.	Question	A	B	C	D	ans
96	The driver of a car traveling along a straight level road suddenly apply a breaks so that the car moved with constant deceleration of 4.905 m/s^2. Find the coefficient friction between the tyres and road.	0.25	0.5	0.75	None of these	**b**
97	During the journey, a 250 kg car traveling at speed of 9.81 m/s just loose the contact with the road as it reaches the crest of the hill, determine the radius of curvature.	1 m	9.81 m	4.905 m	None of these	**b**
98	A small block slides along the cylindrical surface, the normal reaction exerted by the surface on the block at which it will leave the cylindrical surface is	Minimum	Maximum	Zero	None of these	**c**
99	The driver of a car traveling along a straight level road suddenly apply a breaks so that the car moved with constant deceleration of 2.453 m/s^2. Find the coefficient friction between the tyres and road.	0.25	0.5	0.75	None of these	**a**
100	The driver of a car traveling along a straight level road suddenly apply a breaks so that the car moved with constant deceleration of 1.00 m/s^2. Find the coefficient friction between the tyres and road.	1.02	2.01	0.12	None of these	**a**
101	During the journey, a 250 kg car traveling at speed of 10 m/s just loose the contact with the road as it reaches the crest of the hill, determine the radius of curvature.	9.81 m	10.2 m	98.1	None of these	**b**
102	A 600 kg wreeking ball is attached to a cable of length 12 m and negligible mass. The velocity of the ball is 8 m/s when the cable is vertical. Determine the tension in the cable if the ball swing in the vertical plane.	9810 N	9806 N	2686 N	None of these	**b**
103	A 600 kg wreeking ball is attached to a cable of length 12 m and negligible mass. If the tension in the cable 9810 N when the ball swing in the vertical plane. Determine the velocity of the ball for vertical position of cable.	9.81 m/s	8.86 m/s	30.94 m/s	None of these	**b**
104	The pendulum bob has a mass m and is released from rest when $\theta = 0$ with horizontal. Determine the tension in the cord as a function of angle of descent θ	3 mg cos θ	2 mg sin θ	3 mg sin θ	2 mg cos θ	**c**
105	The pendulum bob has a mass m and is released from rest when $\theta = 0$ with horizontal. If the length of cord is l, then the velocity of the bob as a function of angle of descent θ is given by	$v^2 = 2gl \sin\theta$	$v^2 = 3gl \sin\theta$	$v^2 = 4gl \sin\theta$	$v^2 = 2gl \cos\theta$	**a**
106	The pendulum bob has a mass 10 kg and is released from rest when $\theta = 0$ with horizontal. Determine the tension in the cord at $\theta = 30$ degree.	147.15 N	98.1 N	254.87 N	None of these	**a**
107	The pendulum bob has a mass 10 kg and is released from rest when $\theta = 0$ with horizontal. If the length of cord is 1 m, determine the velocity of the bob at $\theta =$ 30 degree.	9.81 m/s	3.13 m/s	3.84 m/s	None of these	**b**
108	It is observed that the passengers on the amusement park ride moving with constant speed and the supporting cable are directed at 30 degree from the vertical. Each chair including its passenger has a mass of 80 kg and radius of curvature is 7 m, determine the tension in the supporting cable	784.8 N	906.2 N	679.66 N	None of these	**b**
109	It is observed that the passengers on the amusement park ride moving with constant speed and the supporting cable are directed at 30 degree from the vertical. If the tension in supporting cable is 900 N and radius of curvature is 7 m, determine mass of each chair including its passenger.	79.45 kg	105.94 kg	100 kg	None of these	**a**

Sr. No.	Question	A	B	C	D	ans
110	A girl having mass of 25 kg sits on the merry go round at a distance of 1.5 m from the centre of rotation. Determine the maximum constant speed at which she slip off the merry go round if the coefficient of static friction is 0.3.	2.1 m/s	3.84 m/s	4.41 m/s	None of these	**a**
111	A girl having mass of 50 kg sits on the merry go round at a distance of 1.5 m from the centre of rotation. Determine the maximum constant speed at which she slip off the merry go round if the coefficient of static friction is 0.3.	3.84 m/s	2.1 m/s	4.41 m/s	None of these	**b**
112	A girl having mass of 50 kg sits on the merry go round at a distance of 1.5 m from the centre of rotation. Determine the coefficient of static friction if maximum constant speed is 3 m/s at which she slip off the merry go round.	0.612	0.989	0.491	None of these	**a**
113	A girl having mass of 50 kg sits on the merry go round at a radial distance r from the centre of rotation. Determine radial distance r if the coefficient of static friction is 0.3 and the maximum constant speed is 3 m/s at which she slip off the merry go round.	2.94 m/s	3.06 m	2.7 m	None of these	**b**
114	The man has a mass of 80 kg and sits at 3 m from the centre of the rotating platform. Determine the maximum velocity at which he can slip from the rotating platform if the coefficient of static friction between contact surface is 0.3.	5.42 m/s	1.76 m/s	2.97 m/s	None of these	**c**
115	The man has a mass of 80 kg and sits at r from the centre of the rotating platform. The maximum velocity at which he can slip from the rotating platform is 2.97 m/s and the coefficient of static friction between contact surface is 0.3. Determine the distance r.	9.8 m	2.94 m	0.9 m	3 m	**d**
116	When a car of mass m moves with velocity v over a hump of radius of curvature ρ , the normal reaction exerted by the wheels on the road is	$N = mv^2/\rho - mg$	$N = mv^2/\rho + mg$	$N = mv^2 + mg$	None of these	**a**
117	When a car of mass m moves with velocity v over a trough of radius of curvature ρ , the normal reaction exerted by the wheels on the road is	$N = mv^2/\rho - mg$	$N = mv^2/\rho + mg$	$N = mv^2 + mg$	None of these	**b**
118	During the high speed chase, a 1100 kg car traveling at a speed of 160 km/h just loses contact with the road as it reaches the crest of the hill, determine the radius of curvature of the vertical profile of the road	201.32 m	2609.6 m	16.31 m	None of these	**a**
119	During the high speed chase, a 1000 kg car traveling at a speed of 60 m/s just loses contact with the road as it reaches the crest of the hill, determine the radius of curvature of the vertical profile of the road	6.12 m	588.6 m	366.97 m	None of these	**c**
120	If the pendulum is released from rest in its unstable vertical equilibrium position, determine the magnitude force in the rod at which the axial force in the rod changes from compression to tension.	More than weight of pendulum	Less than weight of pendulum	Zero	None of these	**c**
121	The 25 kg girl is in the lowest position in a swing in a vertical plane. The effective length from mass centre to the fixed support for the rope is 4 m and the velocity of the girl mass centre is 5 m/s, determine the tension in the rope.	401.5 N	89 N	276.5 N	None of these	**a**
122	The 50 kg girl is in the lowest position in a swing in a vertical plane. The effective length from mass centre to the fixed support for the rope is 10 m and the velocity of the girl mass centre is 10 m/s, determine the tension in the rope.	540.5 N	990.5 N	9.5 N	None of these	**b**

Sr. No.	Question	A	B	C	D	ans
123	The 50 kg girl is in the lowest position in a swing in a vertical plane. The effective length from mass centre to the fixed support for the rope is 10 m. Determine the velocity of the girl mass centre if tension in the rope is 990.5 N.	100 m/s	17.21 m/s	10 m/s	None of these	**c**
124	The girl of mass m is in the lowest position in a swing in a vertical plane. The effective length from mass centre to the fixed support for the rope is 10 m and the velocity of the girl mass centre is 10 m/s, determine the mass of girl if tension in the rope is 990.5 N.	50 kg	40 kg	60 kg	None of these	**a**
125	A bob of 1 m pendulum describe an arc of a circle in a vertical plane. When the angle of the cord is 30^0 with the vertical, the tension in the cord is two times the weight of the bob. Find the velocity of the in this position.	3.132 m/s	3.335 m/s	3.365 m/s	None of these	**b**
126	A bob of 1 m pendulum describe an arc of a circle in a vertical plane. When the angle of the cord is 30^0 with the vertical, the tension in the cord is two times the weight of the bob. Find the tangential component of acceleration.	9.81 m/s^2	4.905 m/s^2	19.62 m/s^2	None of these	**b**
127	A bob of 1 m pendulum describe an arc of a circle in a vertical plane. When the angle of the cord is 30^0 with the vertical, the tension in the cord is 95 N. Find the mass of pendulum if its velocity at this instant is 1 m/s.	5 kg	100 kg	10 kg	None of these	**c**
128	A pilot flies an airplane at a constant speed of 600 km/h in the vertical circle of radius 1000 m. Find the force exerted by the seat on 90 kg pilot at lowest point	3382.9 N	1617.2 N	33282.9 N	None of these	**a**
129	A pilot flies an airplane at a constant speed of 600 km/h in the vertical circle of radius 1000 m. Find the force exerted by the seat on 90 kg pilot at highest point	3382.9 N	1617.2 N	882.9 N	None of these	**c**
130	A small vehicle travel on the top of circular path in a vertical plane. Determine the magnitude of normal reaction at which the vechicle leave the circular path	Less than weight of vehicle	More than weight of vehicle	Zero	None of these	**c**
131	A 60 kg wreeking ball is attached to 15 m long steel cable and swing in a vertical arc. Determine the tension in the cable at the top of the swing when the cable at an angle of 20 degree with vertical.	553.1 N	588.6 N	626.3 N	None of these	**a**
132	A 60 kg wreeking ball is attached to 15 m long steel cable and swing in a vertical arc. Determine the tension in the cable at the bottom where the speed of ball is 4.2 m/s.	518 N	588.6 N	659.16 N	None of these	**c**
133	A 60 kg wreeking ball is attached to 15 m long steel cable and swing in a vertical arc. Determine the velocity of the ball at the bottom if the tension in the cable is 690 N.	5.03 m/s	25.35 m/s	1.59 m/s	None of these	**a**
134	A small block of weight W rest on a horizontal turntable at a distance r from the axis of rotation. If the coefficient of static friction between contact surface is μ, determine the maximum speed at which the block will slip.	$v^2 = 2\mu gr$	$v^2 = \mu gr$	$v^2 = 3\mu gr$	None of these	**b**
135	A small block of weight W rest on a horizontal turntable at a distance of 0.5 m from the axis of rotation. If the coefficient of static friction between contact surface is 0.3, determine the maximum speed at which the block will slip.	1.72 m/s	2.1 m/s	1.21 m/s	None of these	**c**
136	In merry go round, the chairs are supported by cables, If the angular speed of merry go round is increases then chairs swings	Towards axis of rotation	Away from axis of rotation	Cable makes same angle with vertical	None of these	**a**

Sr. No.	Question	A	B	C	D	ans
137	In merry go round, the chairs are supported by cables, If the angular speed of merry go round is decreases then chairs swings	Towards axis of rotation	Away from axis of rotation	Cable makes same angle with vertical	None of these	**b**
138	A particle moving with constant velocity along the circular path in a horizontal plane, the equation of kinetis is not applicable to solve the problem	$\Sigma F_n = ma_n$	$\Sigma F_t = ma_t$	Both a and b	None of these	**b**
139	A particle moving with constant velocity along the circular path in a horizontal plane, the normal reaction exerted on a particle is given by the equation	$\Sigma F_b = 0$	$\Sigma Fz = 0$	Both a and b	None of these	**c**
140	When a car is moving at a curve, the driver bend his body	Toward the centre of curvature	Away from the centre of curvature	Both a and b	None of these	**a**
141	The equation of motion, in kinetics of curvilinear motion of particle are	$\Sigma F_n = ma_n$	$\Sigma F_t = ma_t$	$\Sigma Fb = 0$	All of these	**d**
142	The equation of motion, in kinetics of curvilinear motion of particle are	$\Sigma F_n = ma_n$	$\Sigma F_t = ma_t$	$\Sigma Fz = 0$	All of these	**d**
143	In merry go round, the chairs are supported by cables, If the merry go round rotating with constant angular velocity, the tangential component of acceleration is.	Positive	Negative	Zero	None of these	**c**
144	In merry go round, the chairs are supported by cables, If the merry go round rotating with constant angular velocity ω and radius of curvature is ρ , then the velocity is given by.	$\rho\omega$	$2\rho\omega$	$\rho\omega/2$	None of these	**a**
145	A motorcyclist in a circus rides his motorcycle within the confines of the hollow sphere. If the coefficient of static friction is 0.4, determine the minimum speed at which he must travel if he is to ride along the wall when $\theta = 90$ degree. The mass of motor cycle with rider is 250 kg.	12.13 m/s	24.26 m/s	6.06 m/s	None of these	**a**
146	A motorcyclist in a circus rides his motorcycle within the confines of the hollow sphere. If the coefficient of static friction is 0.4, determine the frictional force at which he must travel if he is to ride along the wall when $\theta = 90$ degree. The mass of motor cycle with rider is 250 kg.	2452.5 N	981 N	6131.25 N	None of these	**a**
147	A motorcyclist in a circus rides his motorcycle within the confines of the hollow sphere. If the coefficient of static friction is 0.4, determine the Normal reaction at which he must travel if he is to ride along the wall when $\theta = 90$ degree. The mass of motor cycle with rider is 250 kg.	2452.5 N	981 N	6131.25 N	None of these	**c**
148	If the pendulum is released from rest in its unstable vertical equilibrium position, determine the nature of force in the rod at which the axial force in the rod changes from compression to tension.	Compressive	Tensile	Null	None of these	**c**
149	In which of the following case, is work being done?	A man pressing a wall	A coolie standing with a load of N on his head	A boy climbing up a stair case	None of the above	**c**
150	The work done by a force on a body will be positive if the	Body does not move	Body moves perpendicular to the direction of applied force	Body moves along the direction of the applied force	Body moves opposite to the direction of applied force	**c**
151	One Joule work is said to be done when	A force of 1 N displaces a body by 1 cm	A force of 1 N displaces a body by 1 m	A force of 1 dyne displaces a body by 1 cm	A force of 1 dyne displaces a body by 1 m	**b**
152	A boy weighing 350 N runs up a flight of 30 steps each 200 mm height . The work done is	2100 J	17500 J	7000 J	None of the above	**a**
153	A man raises a box of 50 kg mass to a height 2 m in 2 minutes, while another man raises the same box to the same height in 5 minutes , the ratio of the work done is	one as to two	one as to one	two as to one	None of the above	**b**
154	A machine raises a load of 750 N through a height of 16 m in 5 s, the work done by machine is	12000 J	24000 J	3750 J	None of the above	**a**

Sr. No.	Question	A	B	C	D	ans
155	A man exerts a force of 200 N in pulling a cart of a constant speed of 16 m/s, the power spent by man is	216 W	3200 W	184 W	None of the above	**b**
156	A boy of mass 40 kg runs upstairs and reaches 8 m high first floor in 5 s. The work done by him against gravity is (take g = 10 m/s^2)	400 Nm	320 Nm	3200 Nm	None of the above	**c**
157	It takes 20 s for 'A' to climb up a stair while 'B' does the same in 15 s. Comparison of power develop by A and B is	1:1	1:2	3:4	4:3	**c**
158	A spring is kept compressed by a toy cart of mass 1 kg. On releasing a cart, it moves with a speed of 2 m/s.The Potential Energy of the spring is	4 Nm.	2 Nm	1 Nm	0.5 Nm	**b**
159	car A is running at at a speed of 15 kmph while another similar car B is moving at a speed of 30 kmph.The ratio of kinetic energies of car A & B is	1 :2	2:1	1:4	4:1	**c**
160	A body of mass 5 kg is taken from a height 5 m to 10 m, the increase in its potentional energy is (Take g = 10 m/s^2)	250 Nm	75 Nm	25 Nm	50 Nm	**a**
161	The kinetic energy of a body of mass 2 kg moving with a speed of 10 m/s is	20 Nm	10 Nm	100 Nm	40 Nm	**c**
162	A man of 60 kg mass runs so that his kinetic energy is 750 Nm . The velocity of man is	25 m/s	5 m/s	12.5 m/s	45000 m/s	**b**
163	A mass of a moving cart is doubled keeping the velocity same, the kinetic energy	Remains same	Gets doubled	Gets Trippled	Will become half	**b**
164	A truck weighing 5 x 10^3 kg and a cart weighing 50 kg are moving with same speed. The comparison of kinetic energy of truck with cart.	1:1	1:10	10:1	1:2	**c**
165	The body of mass 2 kg having momentum 20 kg m/s . The kinetic energy of the body is	10 Nm	40 Nm	80 Nm	100 Nm	**d**
166	To keep the kinetic energy of the body same , if its mass is increased four times, the velocity will get	Doubled	Trippled	Halved or half	Remain Same	**c**
167	A machine raises a load of 100 N through a height of 8 m in 5 s, the power at which the machine works is	800 W	500 W	4000 W	None of the above	**d**
168	A ball tied to a string is being whirled around a circle. What can you say about the work done by tension?	Tension does no work at all	Tension does negative work	Tension does positive work	None of the Above	**a**
169	A box is being pulled up a rough incline plane by a rope connected to a pulley. How many forces are doing work on the box?	One force	Two forces	Three forces	Four forces	**c**
170	By what factor does the Kinetic Energy of a car change when its speed is trippled?	No change at all	Factor of 3	Factor of 6	Factor of 9	**d**
171	Car 1 has double the mass of car 2, but their kinetic energies are same. What is the relation between their speed?	2V1=V2	√2 V1=V2	4V1 = V2	V1=V2	**b**
172	A box is being pulled across a rough floor at a constant speed, What can you say about the work done by friction?	Friction does no work at all	Friction does negative work	Friction does positive work	None of the Above	**b**
173	A car starts from rest and accelerates to 30 kmph. Later, it gets on a highway and accelerates to 60 kmph.Which part of journey takes more energy?	0-30 kmph	30-60 kmph	Both the same	None of the Above	**b**
174	How does the work required to stretch a spring by 20 mm compare with work required to stretch it by 10 mm?	Same amount of the work	Twice the work	Four time the work	Eight time the work	**c**
175	Mike performed 5 J of work in 10 seconds, Joy performed 3 J of work in 5 s, who produced more power?	Mike	Joy	Both produced the same amount of power	Zero power	**b**
176	At what point the potential energy of a body is taken to be Zero ?	At 1m above earth surface	At 5m above earth surface	On the earth surface	None of the above	**c**
177	If 20 joules of work is done in compressing spring from 0 to 60 mm, then how much work is done in compressing the same from 30 mm to 60 mm?	5 J	7 J	15 J	13 J	**a**
178	A particle of mass 20 gm is thrown vertically upwards with a speed of 10 m/s. Find the work done by the force of gravity during the time the particle goes up.	- 2. 0 J	-10.0 J	– 1.0 J	- 1.5 J	**c**

Sr. No.	Question	A	B	C	D	ans
179	An elevator weighing 500 kg is to be lifted up at a constant velocity of 0.20 m/s. What would be the minimum horse power of the motor to be used?	1000 W	1200 W	980 W	880 W	**c**
180	A force F = (10 + 0.5x) acts on a particle in the x direction where F is in N and x in meter. Find the work done by this force during a displacement from x = 0 to x = 2.0 m.	21 J	31 J	19 J	20 J	**a**
181	A body dropped from a height h reaches the ground with a speed of 1.2 $\sqrt{gh}$. Calculate the work done by air friction.	– 0. 38 mgh	– 0. 28 mgh	– 0. 48 mgh	– 0. 58 mgh	**b**
182	Two springs A and B ($k_A = 2k_B$) are stretched by applying the forces of equal magnitudes at ends. If the energy stored in A is E, then the energy stored in B is	E/2	2E	E	E/4	**a**
183	The mass of cyclist together with bike is 90 kg. Calculate the increase in kinetic energy if speed increases from 6 kmph to 12 kmph.	300 J	375 J	400 J	575 J	**b**
184	A block of mass 2 kg moving at a speed of 10 m/s accelerates at 3 m/s^2 for 5 s. Compute its final kinetic energy.	625 J	525 J	300 J	400 J	**a**
185	A box is pushed through 4 m across a floor offering 100 N resistance. How much work is done by a resisting force?	400 J	300 J	425 J	390 J	**a**
186	A block of mass 5 kg slides down an inclined plane of inclination 30^0 and length 10 m. Find the work done by the gravity force.	235 J	255 J	225 J	245 J	**d**
187	A spring is stretched by 50 mm by applying a force. Find the work done, if the force required for stretching 1mm of the spring is 10 N.	11.5 J	13.0 J	12.5 J	14.5 J	**c**
188	Calculate the work done in pulling up a block of wood weighing 2 kN for a length of 10 m on a smooth plane inclined at an angle of 30^0 with the horizontal.	10 kNm	12 kNm	9 kNm	13 kNm	**a**
189	What power is needed to fill an overhead tank of capacity 60000 lit in two hours, if the water is to be lifted through a height of 30m?	4250 W	2450 W	2540 W	5420 W	**b**
190	What work will be done in lifting a tin of paint weighing 5 N from the ground floor to the second floor of a building? The height from the ground floor to second floor is 8 m.	20 N	60 N	40 N	80 N	**c**
191	Five men pushed a bus, which had a breakdown. The mass of the bus is 7 tonnes and the frictional resistance is 0.25 kN / tonne. Determine the work done by the men in pushing the bus at a constant speed over a distance of 15 m.	26.25 kJ	36.25 kJ	30.00 kJ	16.45 kJ	**a**
192	A man having a mass of 80 kg runs up a flight of stairs in 5 s. Determine the horse power required by the man, if the flight of the stair is 3.5 m high.	548 W	458 W	845 W	584 W	**a**
193	For throwing a ball of mass m , a spring gun is used. If the vertical spring of constant K is initially compressed by an amount δo, find the velocity Vo with which the ball will leave the gun.	$Vo = \delta o (K / m)^{1/2}$	$Vo = \delta o (2K / m)^{1/2}$	$Vo = \delta o (K / 2m)^{1/2}$	$Vo = 2\delta o (K / m)^{1/2}$	**a**
194	A spring having spring constant 600 N/m is stretched from its original unstretched length through 100 mm. The work done is	60 Nm	3Nm	30 Nm	None of above	**b**
195	A vehicle of 1200 kg mass moving with a velocity of 20 m/s has a kinetic energy of	120 kJ	240 kJ	360 kJ	480 kJ	**b**
196	A block of mass 'm' starts moving with an initial velocity u on a horizontal plane. Find the coefficient of friction μ if the block stops after covering a distance 's'.	$\mu = u^2 / gs$	$\mu = 2u^2 / 2gs$	$\mu = u^2 / gs$	$\mu = u^2 / 2gs$	**d**
197	A car of mass 2000 kg is moving with a constant speed of 60 kmph, when the breaks are applied, causing a breaking force of 6 kN. Determine the distance travelled by the car before it comes to rest.	x = 43.3 m	x = 46.3 m	x = 64.3 m	x = 44.3 m	**b**

Sr. No.	Question	A	B	C	D	ans
198	A bullet moving with a velocity of 165 m/s penetrates through a plank. The bullet has a velocity of 143 m/s, the moment it comes out of the plank. The number of planks through which it can penetrate before it comes to rest are	4	3	2	None of these	**c**
199	A long spring is stretched by 20 mm; its potential energy is U. If the spring is stretched by 100 mm, the potential energy stored in it will be	U / 25	U / 5	5U	25 U	**d**
200	What is unit of work?	Joules	W	N/m	Joules/meter	**a**
201	1 Joule is equal to	1 N-m	1 N-cm	1 N/m	1 N/cm	**a**
202	Which of the following statements is correct?	K.E. is by virtue of position	P.E. is by virtue of position	K.E. can be negative	P.E. can never be negative	**b**
203	A 10 kg body is dropped from a height of 50 m, find the K.E. of the body after 2 s	$5 \times (19.62)^2$ J	$10 \times (19.62)^2$ J	$5 \times (9.81)^2$ J	$10 \times (9.81)^2$ J	**a**
204	A 10 kg body is dropped from a height of 50 m, find the K.E. of the body after 1 s	$5 \times (19.62)^2$ J	$10 \times (19.62)^2$ J	$5 \times (9.81)^2$ J	$10 \times (9.81)^2$ J	**c**
205	A 5 kg body is dropped from a height of 50 m, find the K.E. of the body after 2 s	$5 \times (19.62)^2$ J	$2.5 \times (19.62)^2$ J	$2.5 \times (9.81)^2$ J	$10 \times (9.81)^2$ J	**b**
206	A 5 kg body is dropped from a height of 50 m, find the K.E. of the body after 1 s	$5 \times (19.62)^2$ J	$2.5 \times (19.62)^2$ J	$2.5 \times (9.81)^2$ J	$10 \times (9.81)^2$ J	**c**
207	A 10 kg body is dropped from a height of 25 m, find the K.E. of the body after 1 s	$5 \times (19.62)^2$ J	$10 \times (19.62)^2$ J	$5 \times (9.81)^2$ J	$10 \times (9.81)^2$ J	**c**
208	A 5 kg body is dropped from a height of 25 m, find the K.E. of the body after 2 s	$5 \times (19.62)^2$ J	$2.5 \times (19.62)^2$ J	$2.5 \times (9.81)^2$ J	$10 \times (9.81)^2$ J	**b**
209	A 20 kg body is dropped from a height of 50 m, find the K.E. of the body after 1 s	$20 \times (9.81)^2$ J	$20 \times (19.62)^2$ J	$10 \times (9.81)^2$ J	$10 \times (19.62)^2$ J	**c**
210	A 20 kg body is dropped from a height of 50 m, find the K.E. of the body after 2 s	$20 \times (9.81)^2$ J	$20 \times (19.62)^2$ J	$10 \times (9.81)^2$ J	$10 \times (19.62)^2$ J	**d**
211	A 20 kg body is dropped from a height of 25 m, find the K.E. of the body after 2 s	$20 \times (9.81)^2$ J	$20 \times (19.62)^2$ J	$10 \times (9.81)^2$ J	$10 \times (19.62)^2$ J	**d**
212	A 10 kg body is dropped from a height of 50 m, find the P.E. of the body after 1s	10 x 9.81 x 45.095 J	5 x 9.81 x 45.095 J	0.5 x 9.81 x 45.095 J	0.5 x 5 x 9.81 x 45.095 J	**a**
213	A 10 kg body is dropped from a height of 50 m, find the P.E. of the body after 2 s	5 x 9.81 x 30.38 J	9.81 x 30.38 J	2 x 9.81 x 30.38 J	10 x 9.81 x 30.38 J	**d**
214	A 10 kg body is thrown upward with a velocity of 20 m/s. Find the K.E. of the body after 2 s	10 x (0.38) J	$10 \times (0.38)^2$ J	$5 \times (0.38)^2$ J	5 x (0.38) J	**c**
215	A 10 kg body is thrown upward with a velocity of 20 m/s. Find the K.E. of the body after 1s	5 x 10.19 J	10 x 10.19 J	$5 \times (10.19)^2$ J	$10 \times (10.19)^2$ J	**c**
216	A 20 kg body is thrown upward with a velocity of 20 m/s. Find the K.E. of the body after 2 s.	20 x (0.38) J	$20 \times (0.38)^2$ J	10 x (0.38) J	$10 \times (0.38)^2$ J	**d**
217	A 20 kg body is thrown upward with a velocity of 20 m/s. Find the K.E. of the body after 1 s	5 x 10.19 J	10 x 10.19 J	$10 \times (10.19)^2$ J	$20 \times (10.19)^2$ J	**c**
218	A 10 kg body is thrown upward with a velocity of 50 m/s. Find the K.E. of the body after 2 s	10 x 30.38 J	15 x 30.38 J	$5 \times (30.38)^2$ J	0 J	**c**
219	A 10 kg body is thrown upward with a velocity of 50 m/s. Find the K.E. of the body after 1 s	10 x (40.19) J	$10 \times (40.19)^2$ J	5 x (40.19) J	$5 \times (40.19)^2$ J	**d**
220	A 10 kg body is thrown upward with a velocity of 50 m/s. Find the K.E. of the body after 3 s	10 x 20.57 J	$10 \times (20.57)^2$ J	$50 \times (20.57)^2$ J	$5 \times (20.57)^2$ J	**d**
221	A 10 kg body is thrown upward with a velocity of 50 m/s. Find the K.E. of the body after 4 s	50 x (10.76) J	$10 \times (10.76)^2$ J	5 x (10.76) J	$5 \times (10.76)^2$ J	**d**
222	A 100 N force is acting at an angle of 60° on a body which is rest on the horizontal plane. Find the work done by the force when the body undergoes a horizontal distance of 1 m.	100 J	50 J	0 J	None of the Above	**b**
223	A 100 N force is acting at an angle of 60° on a body which is rest on the horizontal plane. Find the work done by the force when the body undergoes a horizontal distance of 2 m.	200 J	20 J	100 J	0 J	**c**
224	A 100 N force is acting at an angle of 60° on a body which is rest on the horizontal plane. Find the work done by the force when the body undergoes a horizontal distance of 3 m.	150 J	300 J	0 J	200 J	**a**

Sr. No.	Question	A	B	C	D	ans
225	Work done by a force is the product of -----	Force & time	Force & velocity	Force & acceleration	Force & distance	**d**
226	A horizontal 50 N force is applied to a 10 kg body which makes the body to move horizontally through 0.50 m, what is work done by weight of the body?	2.5 J	25 J	250J	0 J	**d**
227	A 2 kg body is moving with constant acceleration of 4 m/s^2 starting from rest. What is work done by the force acting on the body in 4 s.? (Assume no friction)	(80 N x 16 m) N-m	(20 N x 8 m) N-m	(8 N x 32 m) N-m	(40 N x 8m) N-m	**c**
228	A 10 kg body is moving with constant acceleration of 1 m/s^2 starting from rest. What is Kinetic Energy of the body after 5 s.?	12.5 J	1250 J	1.25 J	125 J	**d**
229	A 10 kg body is moving with constant acceleration of 2 m/s^2 starting from rest. What is Kinetic Energy of the body after 5 s.?	50J	500J	5J	25J	**b**
230	A 5 kg body is moving with constant acceleration of 2 m/s^2 starting from rest. What is Kinetic Energy of the body after 5 s.?	25 J	2.5 J	2500 J	250 J	**d**
231	A 5 kg body is moving with constant acceleration of 1 m/s^2 starting from rest. What is Kinetic Energy of the body after 2 s.?	0.1 J	1 J	100 J	10 J	**d**
232	A 10 kg body is moving with constant acceleration of 2 m/s^2 starting from rest. What is Kinetic Energy of the body after 2 s ?	8 J	80 J	0.8 J	800 J	**b**
233	A 5 kg body is moving with constant acceleration of 2 m/s^2 starting from rest. What is Kinetic Energy of the body after 2 s ?	0.4 J	4 J	400 J	40 J	**d**
234	A 10 kg body is moving with constant acceleration of 4 m/s^2 starting from rest. What is work done by the force acting on the body in 4 s ? (Assume no friction)	(10 N x 80 m) N-m	(10 N x 8 m) N-m	(10 N x 4 m) N-m	(100 N x 32 m) N-m	**d**
235	Calculate the work done by the gravity action on 70 kg student sliding down 30^0 inclined plane who slides a slant distance of 10 m.	3430 J	4330 J	4444 J	3034 J	**a**
236	What is Work Energy Principle?	Change in P.E. is equal to work done	Change in Total Energy is equal to work done	Change in K.E. is equal to work done	Change in P.E. is equal to loss in K.E.	**c**
237	A 1 kg body is dropped from a height of 5 m above the ground. What is total energy of the body at the instant when it is being dropped?	49.05 J	100 J	5 J	500J	**a**
238	A 1 kg body is dropped from a height of 5 m above the ground. What is total energy of the body as it strikes the ground?	0 J	2 J	5 J	49.05 J	**d**
239	A 5 kg body is moving down 45° incline from rest for which $\mu K = 0.2$. Which of the following principle is applicable for analysis?	Principle of Energy conservation	Principle of momentum conservation	Work Energy principle	Principle of virtual work.	**c**
240	A spring is kept in the vertical position with length 50 cm. If undeformed length of the spring is 40 cm & stiffness of the spring is 10 N/cm, find the force in the spring.	500 N (↑)	500 N (↓)	100 N (↑)	100 N (↓)	**c**
241	A spring is kept in the vertical position with length 30 cm. If undeformed length of the spring is 40 cm & stiffness of the spring is 10 N/cm, find the force in the spring.	100 N (↑)	100 N (↓)	300 N (↑)	300 N (↓)	**b**
242	A spring is kept in the vertical position with length 60 cm. If undeformed length of the spring is 40 cm & stiffness of the spring is 10 N/cm, find the force in the spring.	600 N (↑)	400 N (↓)	200 N (↑)	200 N (↓)	**c**
243	A spring is kept in the vertical position with length 60 cm. If undeformed length of the spring is 40 cm & stiffness of the spring is 20 N/cm, find the force in the spring.	400 N (↓)	1200 N (↓)	800 N (↓)	400 N (↑)	**d**

Sr. No.	Question	A	B	C	D	ans
244	A spring is kept in the vertical position with length 70 cm. If undeformed length of the spring is 40 cm & stiffness of the spring is 20 N/cm, find the force in the spring.	1400 N (↑)	800 N (↓)	600 N (↑)	600 N (↓)	**c**
245	A spring is kept in the vertical position with length 20 cm. If undeformed length of the spring is 40 cm & stiffness of the spring is 10 N/cm, find the force in the spring.	200 N (↑)	200 N (↓)	400 N (↑)	400 N (↓)	**b**
246	A spring is kept in the vertical position with length 10 cm. If undeformed length of the spring is 40 cm & stiffness of the spring is 10 N/cm, find the force in the spring.	100 N (↑)	400 N (↓)	300 N (↑)	300 N (↓)	**d**
247	A spring is kept in the vertical position with length 20 cm. If undeformed length of the spring is 40 cm & stiffness of the spring is 20 N/cm, find the force in the spring.	400 N (↑)	800 N (↓)	400 N (↓)	800 N (↓)	**c**
248	A spring is kept in the vertical position with length 10 cm. If undeformed length of the spring is 40 cm & stiffness of the spring is 20 N/cm, find the force in the spring.	800 N (↑)	200 N (↓)	600 N (↑)	600 N (↓)	**d**
249	A spring is kept in the vertical position with length 10 cm. If undeformed length of the spring is 40 cm & stiffness of the spring is 30 N/cm, find the force in the spring.	300 N (↓)	900 N (↓)	900 N (↑)	1200 N (↑)	**b**
250	A spring is kept in the horizontal position with length 50 cm. If undeformed length of the spring is 40 cm & stiffness of the spring is 10 N/cm, find the force in the spring.	500 N (↓)	400 N (←)	100 N (←)	200 N (↓)	**c**
251	A spring is kept in the horizontal position with length 30 cm. If undeformed length of the spring is 40 cm & stiffness of the spring is 10 N/cm, find the force in the spring.	300 N (←)	400 N (→)	100 N(←)	100 N (→)	**d**
252	A spring is kept in the horizontal position with length 70 cm. If undeformed length of the spring is 40 cm & stiffness of the spring is 10 N/cm, find the force in the spring.	700 N(←)	300 N(→)	300 N(←)	400 N(→)	**c**
253	A spring is kept in the horizontal position with length 20 cm. If undeformed length of the spring is 40 cm & stiffness of the spring is 10 N/cm, find the force in the spring.	200 N(←)	400 N (→)	800 N(←)	200 N (→)	**d**
254	A spring is kept in the horizontal position with length 10 cm. If undeformed length of the spring is 40 cm & stiffness of the spring is 10 N/cm, find the force in the spring.	400 N (←)	100 N (→)	300 N (←)	300 N (→)	**d**
255	A spring is kept in the horizontal position with length 60 cm. If undeformed length of the spring is 40 cm & stiffness of the spring is 20 N/cm, find the force in the spring.	1200 N (←)	800 N (→)	400 N (←)	0 N	**c**
256	A spring is kept in the horizontal position with length 10 cm. If undeformed length of the spring is 40 cm & stiffness of the spring is 20 N/cm, find the force in the spring.	600 N (→)	200 N (←)	800 N (→)	0 N	**a**
257	A spring is kept in the horizontal position with length 50 cm. If undeformed length of the spring is 40 cm & stiffness of the spring is 20 N/cm, find the force in the spring.	800 N (←)	1000 N (→)	100 N (→)	200 N (←)	**d**
258	A spring is kept in the horizontal position with length 30 cm. If undeformed length of the spring is 40 cm & stiffness of the spring is 20 N/cm, find the force in the spring.	600 N (→)	200 N (→)	800 N (→)	0 N	**b**
259	A spring of undeformed length 30 cm is stretched to 40 cm. Determine the work done by the spring force if spring constant is 10 N/cm.	500 J	600 J	-500 J	-600J	**c**
260	A spring of undeformed length 30 cm is stretched to 50 cm. Determine the work done by the spring force if spring constant is 10 N/cm.	2000 J	200 J	-200 J	-2000J	**d**

Sr. No.	Question	A	B	C	D	ans
261	A spring of undeformed length 30 cm is stretched to 50 cm. Determine the work done by the spring force if spring constant is 20 N/cm.	4000 J	-4000 J	100 J	50 J	**b**
262	A spring of undeformed length 30 cm is stretched to 40 cm. Determine the work done by the spring force if spring constant is 20 N/cm.	300 J	500 J	-1000 J	1000 J	**c**
263	A spring of undeformed length 30 cm is stretched to 35 cm. Determine the work done by the spring force if spring constant is 20 N/cm.	-250 J	250 J	500 J	1000 J	**a**
264	A spring of undeformed length 30 cm is stretched to 20 cm. Determine the work done by the spring force if spring constant is10 N/cm.	1000 J	500 J	-500 J	0 J	**c**
265	A spring of undeformed length 30 cm is stretched to 10 cm. Determine the work done by the spring force if spring constant is 10 N/cm.	-2000 J	50 J	-50 J	100 J	**a**
266	A spring of undeformed length 30 cm is stretched to 15 cm. Determine the work done by the spring force if spring constant is 10 N/cm.	1125 J	-1125 J	500 J	-500 J	**b**
267	A spring of undeformed length 30 cm is stretched to 25 cm. Determine the work done by the spring force if spring constant is 10 N/cm.	500 J	125 J	0 J	-125 J	**d**
268	A spring of undeformed length 30 cm is stretched to 45 cm. Determine the work done by the spring force if spring constant is 10 N/cm.	1125 J	-1125 J	500 J	0 J	**b**
269	A spring of undeformed length 30 cm is stretched to 40 cm. Determine the work done by the spring force if spring constant is 30 N/cm.	500 J	-500 J	-1500 J	1000 J	**c**
270	A spring of undeformed length 30 cm is stretched to 50 cm. Determine the work done by the spring force if spring constant is 30 N/cm.	100 J	50 J	4000 J	-6000 J	**d**
271	A spring of undeformed length 30 cm is stretched to 35 cm. Determine the work done by the spring force if spring constant is 30 N/cm.	-375 J	500 J	0 J	-500 J	**a**
272	A spring of undeformed length 30 cm is stretched to 45 cm. Determine the work done by the spring force if spring constant is 30 N/cm.	40J	-40 J	-3375 J	0 J	**c**
273	A spring of undeformed length 30 cm is stretched to 55 cm. Determine the work done by the spring force if spring constant is 20 N/cm.	100 J	50 J	-6250 J	0 J	**c**
274	A spring of undeformed length 30 cm is stretched to 20 cm. Determine the work done by the spring force if spring constant is 20 N/cm.	-1000 J	100 J	10 J	0 J	**a**
275	A spring of undeformed length 30 cm is stretched to 10 cm. Determine the work done by the spring force if spring constant is 20 N/cm.	500 J	-500 J	-4000 J	10 J	**c**
276	A spring of undeformed length 30 cm is stretched to 15 cm. Determine the work done by the spring force if spring constant is 20 N/cm.	0 J	100 J	-2250 J	500 J	**c**
277	A spring of undeformed length 30 cm is stretched to 25 cm. Determine the work done by the spring force if spring constant is 20 N/cm.	5 J	10 J	15 J	-250 J	**d**
278	A spring of undeformed length 30 cm is stretched to 5 cm. Determine the work done by the spring force if spring constant is 20 N/cm.	100 J	50 J	-6250 J	0 J	**c**
279	A spring of undeformed length 30 cm is stretched to 20 cm. Determine the work done by the spring force if spring constant is 30 N/cm.	-1500 J	100 J	50 J	0 J	**a**
280	A spring of undeformed length 30 cm is stretched to 10 cm. Determine the work done by the spring force if spring constant is 30 N/cm.	100 J	50 J	0 J	-6000 J	**d**
281	A spring of undeformed length 30 cm is stretched to 15 cm. Determine the work done by the spring force if spring constant is 30 N/cm.	500 J	100 J	-3375 J	0 J	**c**
282	A spring of undeformed length 30 cm is stretched to 5 cm. Determine the work done by the spring force if spring constant is 30 N/cm.	-9375 J	0 J	100 J	1000 J	**a**

Sr. No.	Question	A	B	C	D	ans
283	A spring of undeformed length 30 cm is stretched to 25 cm. Determine the work done by the spring force if spring constant is 30 N/cm.	300 J	-375 J	400 J	1000 J	**b**
284	A spring of undeformed length 10 cm is stretched from 20 cm to 30 cm. Determine the work done by spring force if spring constant is 10 N/cm.	0 J	-1500 J	100 J	50 J	**b**
285	A spring of undeformed length 10 cm is stretched from 15 cm to 25 cm. Determine the work done by spring force if spring constant is 10 N/cm.	0 J	500 J	-1000 J	100 J	**c**
286	A spring of undeformed length 10 cm is stretched from 20 cm to 25 cm. Determine the work done by spring force if spring constant is 10 N/cm.	-625 J	0 J	100 J	50 J	**a**
287	A spring of undeformed length 10 cm is stretched from 25 cm to 30 cm. Determine the work done by spring force if spring constant is 10 N/cm.	0 J	100 J	1000 J	-875 J	**d**
288	A spring of undeformed length 10 cm is stretched from 15 cm to 30 cm. Determine the work done by spring force if spring constant is 10 N/cm.	0 J	-1875 J	50 J	10 J	**b**
289	A spring of undeformed length 20 cm is stretched from 25 cm to 30 cm. Determine the work done by spring force if spring constant is 10 N/cm.	0 J	100 J	-375 J	1000 J	**c**
290	A spring of undeformed length 20 cm is stretched from 30 cm to 40 cm. Determine the work done by spring force if spring constant is 10 N/cm.	-100 J	200 J	-1500 J	50 J	**c**
291	A spring of undeformed length 20 cm is stretched from 30 cm to 35cm. Determine the work done by spring force if spring constant is 10 N/cm.	-625 J	625 J	0 J	-1000J	**a**
292	A spring of undeformed length 20 cm is stretched from 25 cm to 35cm. Determine the work done by spring force if spring constant is 10 N/cm.	0 J	-225 J	-875 J	-100 J	**c**
293	A spring of undeformed length 40 cm is stretched from 10 cm to20cm. Determine the work done by spring force if spring constant is 10 N/cm.	2500 J	-2500 J	500 J	0 J	**a**
294	A spring of undeformed length 40 cm is stretched from 10 cm to30cm. Determine the work done by spring force if spring constant is 10 N/cm.	0 J	50 J	-50 J	4000 J	**d**
295	A spring of undeformed length 40 cm is stretched from 20 cm to30cm. Determine the work done by spring force if spring constant is 10 N/cm.	0 J	100 J	1500 J	2000 J	**c**
296	A spring of undeformed length 40 cm is stretched from 25 cm to30cm. Determine the work done by spring force if spring constant is 10 N/cm.	1000 J	625 J	50 J	0 J	**b**
297	A spring of undeformed length 40 cm is stretched from 30 cm to 35cm. Determine the work done by spring force if spring constant is 10 N/cm.	375 J	0 J	50 J	-100 J	**a**
298	A body of weight 10 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.1 m.	0 J	0.5 J	1 J	5 J	**b**
299	A body of weight 10 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.2 m.	0 J	0.5 J	1 J	5 J	**c**
300	A body of weight 10 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.3 m.	0 J	1 J	2 J	1.5 J	**d**
301	A body of weight 10 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.4 m.	0 J	1 J	2 J	1.5 J	**c**
302	A body of weight 10 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.5 m.	0 J	2.5 J	1 J	2 J	**b**
303	A body of weight 20 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.1 m.	1 J	0 J	2 J	3 J	**a**

Sr. No.	Question	A	B	C	D	ans
304	A body of weight 20 N is moving down a 30 degree inclined plane. Find the work done by the weight if the body moves through a distance of 0.2 m.	1 J	0 J	2 J	5 J	**c**
305	A body of weight 20 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.3 m.	1 J	2 J	4 J	3 J	**d**
306	A body of weight 20 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.4 m.	1 J	2 J	4 J	3 J	**c**
307	A body of weight 20 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.5 m.	1 J	3 J	0 J	5 J	**d**
308	A body of weight 30 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.1 m.	1.5 J	0 J	1 J	2 J	**a**
309	A body of weight 30 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.2 m.	2 J	3 J	4J	5 J	**b**
310	A body of weight 30 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.3 m.	2 J	1 J	0 J	4.5 J	**d**
311	A body of weight 30 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.5 m.	5 J	6 J	7.5 J	0 J	**c**
312	A body of weight 40 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.1 m.	0 J	2 J	3 J	4 J	**b**
313	A body of weight 40 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.2 m.	0 J	2 J	3 J	4 J	**d**
314	A body of weight 40 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.3 m.	6 J	8 J	10 J	12 J	**a**
315	A body of weight 50 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.2 m.	5 J	2.5 J	10 J	15 J	**a**
316	A body of weight 50 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.3 m.	5 J	10 J	7.5 J	100 J	**c**
317	A body of weight 50 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.4 m.	5 J	10 J	15 J	20 J	**b**
318	A body of weight 50 N is moving down 30° inclined plane. Find the work done by the weight if the body moves through a distance of 0.5 m.	5 J	10 J	15 J	12.5 J	**d**
319	The Pendulum is oscillating on either side of its rest position.The correct statement is	It has only Kinetic Energy	It has the maximum K.E. at its extreme position	It has the maximum P.E. at its rest position	The sum of its kinetic & potential energies remains constant throughout the motion.	**d**
320	A lift is used to carry 8 persons through a height of 30 m in two minutes. If the average mass of each person is 95 kg, determine the power required.	1375 W	2174 W	1742 W	none of the above	**d**
321	A motor of 100 Hp moves with a uniform speed of 72 km/hr. The forward thrust applied by the engine on the car is	3730 N	3550 N	3839 N	3333 N	**a**
322	A spring of stiffness 1000 N/m is stretched by 10 cm from the un-deformed position. Find the work of spring force.	– 10 Nm	– 5 Nm	– 15Nm	– 7Nm	**b**
323	Impulse due to a force is the product of	Force & time	Force & velocity	Force & acceleration	Force & distance	**a**

Sr. No.	Question	A	B	C	D	ans
324	Rail road car A, of mass 25 Mg, moving with a speed of 0.5 m/s collides with car B, of mass 40 Mg which is at rest. After the impact, car A & B move towards right with a speed of 0.02 m/s and 0.3 m/s respectively. Find the coefficient of restitution between A and B.	0.56	0.65	0.55	0.66	**a**
325	A small rubber ball is released from a height of 800 mm on a horizontal floor after the first bounce it raises to a height of 480 mm, compute the coefficient of restitution.	0.4477	0.7746	0.4444	0.5555	**b**
326	Ball 1 collides with an another identical ball 2 at rest. For what value of coefficient of restitution e, the velocity of second ball become two times that of 1 after collision?	1/3	1/2	1/4	1/6	**a**
327	Two solid rubber balls, A and B having masses 200 and 400 gm respectively are moving in opposite directions with velocity of A equal to 0.3 m/s. After collision the two balls come to rest , then the velocity of B is	0.15 m/s	1.5 m/s	-0.15 m/s	None of the above	**a**
328	A tennis ball bounces down a flight of stairs striking each step in turn and rebounding to the height of the step above. The coefficient of restitution is	1/2	$1/\sqrt{2}$	1/4	1	**b**
329	A particle of mass m_1 moves with speed v and collides with a stationary particle of mass m_2. The first particle continues to move in same direction if m_1 / m_2 is (e = coefficient of restitution)	= e	> e	< e	$> e^2$	**b**
330	A glass marble drops from a height of 3 meters upon a horizontal floor. If the coefficient of restitution be 0.9, find the height to which it rises after the impact.	2.00m	2.43m	3.42m	1.00m	**b**
331	A ball is dropped from a height of 9 meters upon a horizontal slab. If it rebounds to a height of 5.76 meters, the coefficient of restitution is:	0.6	0.4	0.8	0.9	**c**
332	A ball dropped from a height h_1 = 1600 mm is observed to rebound to a height h_2 = 1100 mm from a horizontal floor. Determine the coefficient of restitution.	0.60	0.83	0.93	1.00	**b**
333	A 25 N force is applied to a body for 2 s , What is the impulse due to the applied force on to the body?	25 Ns	50 Ns	2 Ns	0 Ns	**b**
334	A 50 N force is applied to a body for 3 s , What is the impulse due to the applied force on to the body?	25 Ns	50 Ns	2 Ns	150 Ns	**d**
335	A 100 N force is applied to a body for 4 s, What is the impulse due to the applied force on to the body?	4 Ns	100 Ns	400 Ns	150 Ns	**c**
336	A 100 N force is applied to a body for 3 s, What is the impulse due to the applied force on to the body?	3 Ns	300 Ns	400 Ns	150 Ns	**b**
337	A 200 N force is applied to a body for 3 s, what is the impulse due to the applied force on to the body?	3 Ns	300 Ns	600 Ns	150 Ns	**c**
338	A body weighing 25 N is kept over a smooth inclined plane which makes 30° with the horizontal. What is the impulse due to weight of the body during the time interval of 2 s?	25 Ns	5 Ns	0 Ns	2 Ns	**a**
339	A body weighing 25 N is kept over a smooth inclined plane which makes 30° with the horizontal. What is the impulse due to weight of the body during the time interval of 4 s?	25 Ns	5 Ns	0 Ns	50 Ns	**d**
340	A body weighing 25 N is kept over a smooth inclined plane which makes 30° with the horizontal. What is the impulse due to weight of the body during the time interval of 6 s ?	25 Ns	5 Ns	0 Ns	75 Ns	**d**

Sr. No.	Question	A	B	C	D	ans
341	A body weighing 25 N is kept over a smooth inclined plane which makes 30° with the horizontal. What is the impulse due to weight of the body during the time interval of 8 s ?	25 Ns	5 Ns	100 Ns	75 Ns	**c**
342	A body weighing 25 N is kept over a smooth inclined plane which makes 30° with the horizontal. What is the impulse due to weight of the body during the time interval of 10 s ?	25 Ns	125 Ns	100 Ns	75 Ns	**b**
343	A body weighing 50 N is kept over a smooth inclined plane which makes 30° with the horizontal. What is the impulse due to weight of the body during the time interval of 2 s ?	25 Ns	50 Ns	0 Ns	2 Ns	**b**
344	A body weighing 50 N is kept over a smooth inclined plane which makes 30° with the horizontal. What is the impulse due to weight of the body during the time interval of 4 s ?	25 Ns	50 Ns	100 Ns	2 Ns	**c**
345	A body weighing 50 N is kept over a smooth inclined plane which makes 30° with the horizontal. What is the impulse due to weight of the body during the time interval of 6 s ?	75 Ns	150 Ns	100 Ns	2 Ns	**b**
346	A body weighing 50 N is kept over a smooth inclined plane which makes 30° with the horizontal. What is the impulse due to weight of the body during the time interval of 8 s ?	75 Ns	50 Ns	100 Ns	200 Ns	**d**
347	A body weighing 50 N is kept over a smooth inclined plane which makes 30° with the horizontal. What is the impulse due to weight of the body during the time interval of 10 s ?	75 Ns	250 Ns	100 Ns	200 Ns	**b**
348	A 50 N force is applied to a body, moving over horizontal plane, at an angle of 60° with the horizontal. Find out the impulse due to 50 N force during a time interval of 2 s.	100 Ns	50 Ns	75 Ns	0 Ns	**b**
349	A 50 N force is applied to a body, moving over horizontal plane, at an angle of 60° with the horizontal. Find out the impulse due to 50 N force during a time interval of 3 s.	100 Ns	50 Ns	75 Ns	0 Ns	**c**
350	A 50 N force is applied to a body, moving over horizontal plane, at an angle of 60° with the horizontal. Find out the impulse due to 50 N force during a time interval of 4 s.	100 Ns	50 Ns	75 Ns	0 Ns	**a**
351	A 50 N force is applied to a body, moving over horizontal plane, at an angle of 60° with the horizontal. Find out the impulse due to 50 N force during a time interval of 5 s.	100 Ns	50 Ns	125 Ns	0 Ns	**c**
352	A 100 N force is applied to a body, moving over horizontal plane, at an angle of 60° with the horizontal. Find out the impulse due to 100 N force during a time interval of 2 s.	100 Ns	50 Ns	125 Ns	0 Ns	**a**
353	A 100 N force is applied to a body, moving over horizontal plane, at an angle of 60° with the horizontal. Find out the impulse due to 100 N force during a time interval of 3 s.	100 Ns	150 Ns	125 Ns	0 Ns	**b**
354	A 100 N force is applied to a body, moving over horizontal plane, at an angle of 60° with the horizontal. Find out the impulse due to 100 N force during a time interval of 4 s.	100 Ns	150 Ns	125 Ns	200 Ns	**d**
355	A 100 N force is applied to a body, moving over horizontal plane, at an angle of 60° with the horizontal. Find out the impulse due to 100 N force during a time interval of 5 s.	100 Ns	250 Ns	125 Ns	200 Ns	**b**
356	A 100 N force is applied to a body, moving over horizontal plane, at an angle of 60° with the horizontal. Find out the impulse due to 100 N force during a time interval of 6 s.	100 Ns	250 Ns	125 Ns	300 Ns	**d**

Sr. No.	Question	A	B	C	D	ans
357	100 N force is applied to a body, moving over horizontal plane, at an angle of 60° with the horizontal. Find out the impulse due to 100 N force during a time interval of 10 s.	100 Ns	250 Ns	500 Ns	300 Ns	**c**
358	What is the range for values of e?	0 to 1	0 to 100	10 to 100	0 to 0.1	**a**
359	If e = 1, it indicates:	The impact is plastic	The impact is elastic	The impact is neither elastic nor plastic	none of the above	**b**
360	If e = 0, it indicates:	The impact is plastic	The impact is elastic	The impact is neither elastic nor plastic	none of the above	**a**
361	In case of Elastic impact:	Momentum is only conserved	Energy is only conserved	Neither momentum nor Energy is conserved	Both momentum and energy is conserved.	**b**
362	Two bodies with same mass are moving with the velocities 20 m/s & 15 m/s respectively before impact and 12 m/s & 15 m/s respectively after impact, determine the value of e.	1	0.5	0.66	0	**c**
363	What is unit of Impulse?	N-m	Joule	N m/s	Ns	**d**
364	Momentum is defined as the product of ------	Mass & time	Mass & distance	Mass & acceleration	Mass & velocity	**d**
365	A Ball of mass 10 g falls from a height of 5m. It rebounds from a ground to 4 m. The coefficient of restitution 'e' is	√4/5	√5/4	4/5	5/4	**a**
366	The momentum of a system of two bodies is conserved	if either body does not exerts a force on the other	Under all circumstances	When there is no external force acting on body	When external force act only on one body	**c**
367	If a body hits the ground from a height h_1 and rebounds to a height h_2 after having inelastic collision with the ground then the coefficient of restitution is	$e = h_2/h_1$	$e = h_1/h_2$	$e = \sqrt{h_2/h_1}$	$e = \sqrt{h_1/h_2}$	**c**
368	A body hits the ground with 50 m/s velocity and has inelastic collision with the ground then with what velocity it will rebound if the coefficient of restitution is 0.2	1/250 m/s	250 m/s	1/10 m/s	10 m/s	**d**
369	Central impact of two bodies	Can only be direct impact	Must always be elastic impact	May either be direct or indirect	None of the above	**c**
370	The coefficient of restitution is defined on the basis of -----	Velocity components along the line of impact only	Velocity components normal to the line of impact	Velocity vectors before and after collision	None of the above	**a**
371	For a perfectly plastic central impact	The entire kinetic energy of the two bodies must be lost	The two bodies must move stuck together, whether the impact is direct or indirect	The two bodies must move stuck together only if the impact is direct	A body initial at rest, should stay at rest	**c**
372	50 gm glass marbles dropped from a height of 10 m rebounds to height of 7 m calculate impulse?	2.185 Ns	6.285 Ns	8.125 Ns	None of the Above	**d**
373	A sphere of mass 'm' moving with a speed of 'u' strikes a sphere of same mass at rest. If after striking, the two spheres exchange their velocities then determine the coefficient of restitution.	1	0	1/2	None of these	**a**
374	The impulse-momentum principle is applicable	If there is no external force acting on the body	When the momentum is conserved	Only when body hits another body	Whenever Newton's law is applicable	**d**
375	When two bodies collide without the presence of any other forces or force fields,	Their total momentum must be conserved	Their total kinetic energy must be conserved	The collision must be direct	The collision must be central	**a**

Sr. No.	Question	A	B	C	D	ans
376	If a body of mass 2 kg is at rest and is hit by a mass of 4 kg moving with 3 m/s, the fraction of the momentum retained by the moving body assuming the collision to be elastic and head on is	2	3	1/2	1/3	**d**
377	If mass of moving body is much greater than the mass of the body at rest then the approximate velocity of the moving body after head on collision is	Same and in same direction	Same and in apposite direction	Different and in same direction	Different and in opposite direction	**a**
378	The ball of mass 10 gm is dropped on the ground from a height of 10 m. It rebounds to a height of 2.5 m. If the ball is in the contact with ground for 0.01 s, then which statement is correct?	Impulse force between the ground and the ball is 15 N	Impulse force between the ground and the ball is 5 √2 N	Coefficient of restitution between the ground and ball is ¼	Coefficient of restitution between the ground and ball is ½	**d**
379	A ball hits the floor and rebounds after an inelastic collision. In this case:	The momentum of the ball just after the collision is the same as that just before the collision.	The mechanical energy of the ball remains the same in the collision.	The total momentum of the ball and the earth is conserved.	The total energy of the ball and the earth is conserved.	**c**
380	A body of mass 2 kg moving with a velocity of 3 m/s collides head –on with a body of mass 1 kg moving with a velocity of 4 m/s. After collision the two bodies stick together and move with a common velocity which in the units m/s is equal to:	1/3	2/3	1/4	5/4	**b**
381	A body of mass 'm' collides against a wall with the velocity 'v' and rebounds with the same speed. Its change of momentum is:	2 mv	mv	–mv	0	**a**
382	A ball is droped from a height h_1 = 1 m on a smooth floor. Knowing that the height of first bounce h_2 = 0.81 m, determine the coefficient of restitution.	0.9 m	1.11 m	1	None of the Above	**a**
383	A ball is thrown upwards with an initial velocity of v_0. Determine the time taken for the ball to reach the maximum height. Use the impulse –momentum method.	$t = v_0/g$	$t = 2v_0/g$	$t = v_0/2g$	$t = g/v_0$	**a**
384	A rifle of 5 kg mass fires a bullet of 10 gm mass at a velocity of 300 m/s. Determine the velocity with which the rifle recoils.	0.1 m/s	0.3 m/s	0.6 m/s	0.9 m/s	**c**
385	A boy of 50 kg mass runs with a velocity of 5 m/s and jumps into a boat of mass 75 kg. Find the velocity with which the boy and the boat will move together if the boat was initially at rest.	1 m/s	3 m/s	4 m/s	2 m/s	**d**
386	15 mg box car A is coasting freely at 1.5 m/s on the horizontal track when it encounters a tank car B having a mass of 12 mg and coasting at 0.75 m /s towards it. If cars meet and coupled together, determine the speed of both cars just after the coupling.	0.5 m/ s	5.0 m/ s	1.0 m/ s	None of the Above	**a**
387	An 1800 kg car stopped at traffic light is struck from the rear by a 900 kg car and the two become entangled. If the smaller car was moving at 20 m/s before collision, what is the speed of the entangled cars after collision?	7.98 m/s	6.67 m/s	7.66 m/s	8.67 m/s	**b**
388	A 5.00 kg particle has a velocity of (3.00 i – 4.00j) m /s. Find its x and y components of momentum.	(15.00i – 20.00j)	(20.00i -15.00j)	(25.00i - 10.00j)	(20.00i -20.00j)	**a**
389	A steel ball of weight 0.01 N falls from a height 6 m and rebounds to a height of 4 m find the impulse.	0.2300 Ns	0.1962 Ns	0.3200Ns	0.9182 Ns	**b**
390	In an impact testing machine a hammer of mass 10.5 kg is attached to a 1.5 m long lever. The lever is held in horizontal position and is released. The hammer strikes the test piece and breaks it. Determine the velocity of hammer at impact.	5.425 m/s	4.525 m/s	5.245 m/s	None of the Above	**a**

Sr. No.	Question	A	B	C	D	ans
391	A man weighing 700 N is in boat weighing 3000 N which is floating in a still lake if the man starts running along the length of boat at a speed of 5 m/s with respect to the boat. Find the velocity of boat. Neglect resistance to the motion.	- 0.9459 m/s	– 0.9999 m/s	- 1.02 m/s	-1.1111m/s	**a**
392	A man weighing 700 N is in boat weighing 3000 N which is floating in a still lake if he jumps of the boat with an absolute velocity of 8 m/s find the velocity of the boat.	– 1.68 m/s	– 6.18 m/s	- 1.86 m/s	– 8.18 m/s	**c**
393	Rail road car A of mass 15 Mg is traveling at 2 m/s on a horizontal track. Car B of mass 13 Mg is traveling towards A at 0.8 m/s. If the car meet and couple together find the speed of the coupled cars just after the coupling.	0.5 m/s	7.0 m/s	0.7m/s	70 m/s	**c**
394	What is Impulse Momentum Principle?	Change in K.E. = Work done	Impulse of a force system = Change in momentum	Change in Impulsive force = Change in K.E.	Change in P.E. = Change in Kinetic Energy	**b**
395	A 5 kg body is moving with a constant acceleration of 2 m/s^2 starting from rest. Determine the change in momentum in 2 s.	20 Ns	40 Ns	10 Ns	0 Ns	**a**
396	A 5 kg body is moving with a constant acceleration of 2 m/s^2 starting from rest. Determine the change in momentum in 3 s.	20 Ns	40 Ns	30 Ns	0 Ns	**c**
397	A 5 kg body is moving with a constant acceleration of 2 m/s^2 starting from rest. Determine the change in momentum in 4 s.	20 Ns	40 Ns	30 Ns	0 Ns	**b**
398	A 5 kg body is moving with a constant acceleration of 2 m/s^2 starting from rest. Determine the change in momentum in 5 s.	20 Ns	40 Ns	30 Ns	50 Ns	**d**
399	A 5 kg body is moving with a constant acceleration of 3 m/s^2 starting from rest. Determine the change in momentum in 2 s.	20 Ns	40 Ns	30 Ns	50 Ns	**c**
400	A 5 kg body is moving with a constant acceleration of 3 m/s^2 starting from rest. Determine the change in momentum in 3 s.	20 Ns	45 Ns	30 Ns	50 Ns	**b**
401	A 5 kg body is moving with a constant acceleration of 3 m/s^2 starting from rest. Determine the change in momentum in 4 s.	60 Ns	45 Ns	30 Ns	50 Ns	**a**
402	A 5 kg body is moving with a constant acceleration of 3 m/s^2 starting from rest. Determine the change in momentum in 5 s.	60 Ns	45 Ns	75 Ns	50 Ns	**c**
403	A 5 kg body is moving with a constant acceleration of 4 m/s^2 starting from rest. Determine the change in momentum in 2 s.	40 Ns	45 Ns	75 Ns	50 Ns	**a**
404	A 5 kg body is moving with a constant acceleration of 4 m/s^2 starting from rest. Determine the change in momentum in 3 s.	40 Ns	45 Ns	75 Ns	60 Ns	**d**
405	A 5 kg body is moving with a constant acceleration of 4 m/s^2 starting from rest. Determine the change in momentum in 4 s.	40 Ns	80 Ns	75 Ns	60 Ns	**b**
406	A 5 kg body is moving with a constant acceleration of 4 m/s^2 starting from rest. Determine the change in momentum in 5 s.	60 Ns	80 Ns	100 Ns	60 Ns	**c**
407	A 5 kg body is moving with a constant acceleration of 5 m/s^2 starting from rest. Determine the change in momentum in 2 s.	60 Ns	80 Ns	100 Ns	50 Ns	**d**
408	A 5 kg body is moving with a constant acceleration of 5 m/s^2 starting from rest. Determine the change in momentum in 3 s.	60 Ns	75 Ns	100 Ns	50 Ns	**b**
409	A 5 kg body is moving with a constant acceleration of 5 m/s^2 starting from rest. Determine the change in momentum in 4 s.	60 Ns	75 Ns	100 Ns	50 Ns	**c**

Sr. No.	Question	A	B	C	D	ans
410	A 5 kg body is moving with a constant acceleration of 5 m/s^2 starting from rest. Determine the change in momentum in 5 s.	125 Ns	75 Ns	100 Ns	50 Ns	**a**
411	A 5 kg body is moving with a constant acceleration of 5 m/s^2 starting from rest. Determine the change in momentum in 1 s.	25 Ns	75 Ns	100 Ns	50 Ns	**a**
412	A 10 kg body is moving with a constant acceleration of 5 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 2 s.	50 Ns	25 Ns	75 Ns	100 Ns	**d**
413	A 10 kg body is moving with a constant acceleration of 5 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 3 s.	50 Ns	150 Ns	75 Ns	100 Ns	**b**
414	A 10 kg body is moving with a constant acceleration of 5 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 4 s.	50 Ns	150 Ns	200 Ns	100 Ns	**c**
415	A 10 kg body is moving with a constant acceleration of 5 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 5 s.	50 Ns	250 Ns	200 Ns	100 Ns	**b**
416	A 10 kg body is moving with a constant acceleration of 2 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 1 s.	50 Ns	250 Ns	20 Ns	100 Ns	**c**
417	A 10 kg body is moving with a constant acceleration of 2 m/s2. If initial velocity of the body is 2 m/s, determine the change in momentum in 2 s.	50 Ns	40 Ns	20 Ns	100 Ns	**b**
418	A 10 kg body is moving with a constant acceleration of 2 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 3 s.	50 Ns	40 Ns	20 Ns	60 Ns	**d**
419	A 10 kg body is moving with a constant acceleration of 2 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 4 s.	50 Ns	40 Ns	80 Ns	60 Ns	**c**
420	A 10 kg body is moving with a constant acceleration of 2 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 5 s.	100 Ns	40 Ns	80 Ns	60 Ns	**a**
421	A 10 kg body is moving with a constant acceleration of 3 m/s2. If initial velocity of the body is 2 m/s, determine the change in momentum in 1 s.	30 Ns	100 Ns	50 Ns	0 Ns	**a**
422	A 10 kg body is moving with a constant acceleration of 3 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 2 s.	150 Ns	100 Ns	60 Ns	0 Ns	**c**
423	A 10 kg body is moving with a constant acceleration of 3 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 3 s.	150 Ns	100 Ns	60 Ns	90 Ns	**d**
424	A 10 kg body is moving with a constant acceleration of 3 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 4 s.	120 Ns	100 Ns	60 Ns	90 Ns	**a**
425	A 10 kg body is moving with a constant acceleration of 3 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 5 s.	120 Ns	100 Ns	150 Ns	90 Ns	**c**
426	A 10 kg body is moving with a constant acceleration of 4 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 1 s.	120 Ns	100 Ns	150 Ns	40 Ns	**d**
427	A 10 kg body is moving with a constant acceleration of 4 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 2 s.	120 Ns	80 Ns	150 Ns	40 Ns	**b**
428	A 10 kg body is moving with a constant acceleration of 4 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 3 s.	120 Ns	80 Ns	150 Ns	40 Ns	**a**
429	A 10 kg body is moving with a constant acceleration of 4 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 4 s.	120 Ns	80 Ns	150 Ns	160 Ns	**d**
430	A 10 kg body is moving with a constant acceleration of 4 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 5 s.	200 Ns	80 Ns	150 Ns	160 Ns	**a**

Sr. No.	Question	A	B	C	D	ans
431	A 10 kg body is moving with a constant acceleration of 5 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 1 s.	200 Ns	80 Ns	50 Ns	160 Ns	**c**
432	A 10 kg body is moving with a constant acceleration of 5 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 2 s.	100 Ns	80 Ns	50 Ns	160 Ns	**a**
433	A 10 kg body is moving with a constant acceleration of 5 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 4 s.	100 Ns	200 Ns	50 Ns	150 Ns	**b**
434	A 12.5 kg body is moving with a constant acceleration of 5 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 4 s.	100 Ns	200 Ns	50 Ns	250 Ns	**d**
435	A 10 kg body is moving with a constant acceleration of 5 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 3 s.	50 Ns	150 Ns	75 Ns	100 Ns	**b**
436	A 10 kg body is moving with a constant acceleration of 5 m/s^2. If initial velocity of the body is 2 m/s, determine the change in momentum in 6 s.	100 Ns	300 Ns	50 Ns	250 Ns	**b**
437	A 50 N force is applied to a 10 kg body for 5 s. Determine the change in momentum.	2.5 Ns	8 Ns	250 Ns	5 Ns	**c**
438	A 50 N force is applied to a 10 kg body for 2 s. Determine the change in momentum.	25 Ns	100 Ns	250 Ns	50 Ns	**b**
439	A 50 N force is applied to a 10 kg body for 3 s. Determine the change in momentum.	25 Ns	100 Ns	150 Ns	50 Ns	**c**
440	A 50 N force is applied to a 10 kg body for 4 s. Determine the change in momentum.	25 Ns	200 Ns	150 Ns	50 Ns	**b**
441	A 50 N force is applied to a 10 kg body for 5 s. determine the change in momentum.	25 Ns	200 Ns	150 Ns	250 Ns	**d**
442	A 100 N force is applied to a 10 kg body for 5 s. Determine the change in momentum.	500 Ns	300 Ns	200 Ns	100 Ns	**a**
443	A 100 N force is applied to a 10 kg body for 4 s. Determine the change in momentum.	500 Ns	300 Ns	400 Ns	100 Ns	**c**
444	A 100 N force is applied to a 10 kg body for 3 s. Determine the change in momentum.	500 Ns	300 Ns	400 Ns	100 Ns	**b**
445	A 100 N force is applied to a 10 kg body for 2 s. Determine the change in momentum.	500 Ns	300 Ns	400 Ns	200 Ns	**d**
446	A 100 N force is applied to a 10 kg body for 1 s. Determine the change in momentum.	500 Ns	100 Ns	400 Ns	200 Ns	**b**
447	A 100 N force is applied to a 10 kg body for 6 s. Determine the change in momentum.	600 Ns	100 Ns	400 Ns	200 Ns	**a**
448	Two men are standing on a floating boat with a velocity of 4.2 m/s. The mass of each man is 80 kg and that of boat is 400 kg. If the boat was initially at rest, find final velocity of boat by using principle of conservation of momentum. Neglect the water friction.	-1.55 m/s	-1.60 m/s	-1.68 m/s	-1.70 m/s	**c**