Sr. No.	Question	A	B	C	D	ans
1	1 km/h = _____ m/s	5/18	18/5	50/3	1/3	**a**
2	A body moving along a straight line at 20 m/s decelerates at the rate of 4 m/s^2. After 2 seconds its speed will be equal to	8 m/s	12 m/s	16 m/s	- 12 m/s	**b**
3	An object moving with a speed of 5 m/s comes to rest in 10 s, after the brakes are applied. What is the initial velocity?	zero	5 m/s	15 m/s	50 m/s	**b**
4	A body moving along a straight line at 40 m/s undergoes an acceleration of 4 m/s^2. After 10 seconds its speed will be	20 m/s	28 m/s	16 m/s	80 m/s	**d**
5	SI unit of acceleration is _____.	m/s^2	km/h^2	cm/s^2	km/min^2	**a**
6	Retardation is _____.	negative acceleration	positive acceleration	uniform acceleration	variable acceleration	**a**
7	When an object is moving with uniform velocity, what is its acceleration?	zero	uniform	non-uniform	negative	**a**
8	The average speed of a car which covers half the distance with a speed of 20 m/s and other half with a speed of 30 m/s in equal intervals of time is _____.	25 m/s	0 m/s	24 m/s	2.4 m/s	**a**
9	Name the physical quantity that is defined as the rate of change of displacement.	velocity	acceleration	distance	Speed	**a**
10	An object moves with a constant velocity of 9.8 m/s, its acceleration in m/ s^2 is _____.	9.8 m/s^2	zero	0.98 m/s	98 m/s^2	**b**
11	A body moving along a straight line at 20 m/s undergoes an acceleration of 4 m/s^2. After two seconds its speed will be _____.	8 m/s	12 m/s	16 m/s	28 m/s	**d**
12	A car increases its speed from 20 km/h to 50 km/h in 10 seconds. Its acceleration is _____.	30 m/s^2	3 m/s^2	18 m/s^2	0.83 m/s^2	**d**
13	Negative acceleration means an object is moving with _____ .	increasing speed	decreasing speed	uniform speed	constant speed	**b**
14	A body travels from A to B in 10 seconds with a speed of 50 km/h and returns with a speed of 100 km/h in 5 s. Find the average speed.	18.5 m/s	16.5 m/s	15.5 m/s	none of the above	**a**
15	A body travelling with a velocity of 200 m/s is brought to rest in 10 s. Calculate the retardation.	20 ms^{-2}	10 ms^{-2}	15 ms^{-2}	none of the above	**a**
16	A car starting from rest acquires a velocity of 36 km/h in 5 seconds. Calculate: its acceleration	3 ms^{-2}	zero ms^{-2}	2 ms^{-2}	none of the above	**c**
17	A body moving with an initial velocity of 36 km/h accelerates uniformly at the rate of 5 m/s^2 for 20 seconds. Calculate the total distance travelled in 20 s	1400 m	1000 m	1200 m	none of the above	**c**
18	A body moving with an initial velocity of 36 km/h accelerates uniformly at the rate of 5 m/s2 for 20 seconds. Calculate the final velocity.	10 m/s^2	20 m/s^2	30 m/s^2	none of the above	**d**
19	What is the value of gravitational constant?	6.6734x10-11N m^2/kg^2	6.6734x10-10N m^2/kg^2	6.6734x10-11N m/kg^2	6.6734x10-11N m^2/kg	**a**
20	If the distance between two bodies is doubled, the force of attraction F between them will be _____	1/4 F	2 F	1/2 F	F	**a**
21	The force of gravitation between two bodies in the universe does not depend on	the distance between them	the product of their masses	the sum of their masses	the gravitational constant	**c**
22	When an object is thrown up, the force of gravity _____.	Is opposite to the direction of motion	Is in the same direction as the direction of motion	becomes zero at the highest point	increases as it rises up	**a**
23	What is the final velocity of a body moving against gravity when it attains the maximum height?	Zero	$u^2/2g$	h/t	2gh	**a**

Sr. No.	Question	A	B	C	D	ans
24	A stone is dropped from a cliff. Its speed after it has fallen 100 m is	9.8 m/s	44.2 m/s	19.6 m/s	98 m/s	**b**
25	A ball is thrown up and attains a maximum height of 100 m. Its initial speed was	9.8 m/s	44.2 m/s	19.6 m/s	98 m/s	**b**
26	A stone dropped from the roof of a building takes 4 seconds to reach the ground. What is the height of the building?	19.6 m	39.2 m	156.8 m	78.4 m	**d**
27	The acceleration due to gravity is zero at _____.	the equator	poles	sea level	the centre of the earth	**d**
28	The second equation of motion for a freely falling body starting from rest is _____.	$h= ut + (1/2) gt^2$	$h= ut - (1/2) gt^2$	$h= (1/2) gt^2$	$h= - (1/2) gt^2$	**c**
29	The acceleration due to gravity of a body moving against gravity is	9.8 m/s2	-9.8 m/s2	$\pm$ 9.8 m/s^2	9.6 m/s	**b**
30	The weight of an object of mass 10 kg on earth is_____.	9.8 N	9.8 kg	98 N	98 kg	**c**
31	The weight of an object of mass 15 kg at the centre of the earth is _____.	147 N	147 kg	zero	150 N	**c**
32	When a body is projected vertically downwards with initial velocity u then the equation describing motions are	v = u + gt	v = gt	v = u - gt	none of the above	**a**
33	When body is falling down freely, then equation of kinematics is	h = ut	$h= 1/2 gt^2$	$h = ut –1/2 gt^2$	none of the above	**b**
34	When body is projected vertically upward with initial velocity u, then	$v^2 = u^2 + 2gh$	$v^2 = 2gh$	$v^2 = u^2 –2gh$	none of the aboves	**c**
35	A motorist travelling at a speed of 72 kmph sees a traffic signal 200 m ahead of him turn red. Determine the deceleration so that he will just stop at the signal	-1.0 m/s^2	-2 m/s^2	-1.5 m/s^2	-2.5 m/s^2	**a**
36	A motorist is travelling at 72 kmph along a straight road. A traffic signal turns red and it remains red for 15 s. What must be deceleration so that at signal the velocity is zero	-1.33 m/s^2	-2.33 m/s^2	-1.00 m/s^2	1.3 m/s^2	**a**
37	Two cars are travelling towards each other on a single lane at 12 m/s and 9 m/s respectively. They succeed in avoiding the collision exactly at the mid span, if the initial span between them is 100 m. determine the accelerations.	a_2 = - 0.71 m/s^2 a_1 = - 1.44 m/s^2	a_2 = - 0.81 m/s^2 a_1 = - 1.44 m/s^2	a_2 = - 0.81 m/s^2 a_1 = - 1.00/s^2	a_2 = - 0.11m/s^2 a_1 = - 1.6m/s^2	**b**
38	A freely falling object under gravity passes two points M & N 20 m apart, within 1.2 s. Determine the velocity Vn.	Vn = 29.553 m/s	Vn = 20.553 m/s	Vn = 22.553 m/s	Vn = 27.553 m/s	**c**
39	The relationship $s = ut + ½ at^2$is applicable to the bodies those are	Moving with any type of motion	Moving with uniform velocity	Moving with uniform acceleration	None of above	**c**
40	The motion under gravity is a particular case of motion under	Constant velocity	Constant acceleration	Both a and b	None of above	**b**
41	If two bodies A and B are projected upwards such that the velocity of A is double the velocity of B, then the height to which A will rise will be ----- times the height which the body B will rise	2 times	Four times	Eight times	None of the above	**b**
42	A body was thrown vertically down from a tower and traverses a distance of 40 m, during its 4th second of its fall. Determine the initial velocity of the body. Take g = 9.8 m/s2	u = 6.7 m/s	u = 7.7 m/s	u = 5.7 m/s	u=8.7m/s	**c**
43	A body starts with a velocity 10 m/s and moves in a straight line with constant acceleration 2 m/s^2. Determine the distance travelled when velocity reaches 50 m/s	S = 600 m	S = 700 m	S = 300 m	S = 100 m	**a**

Sr. No.	Question	A	B	C	D	ans
44	Car `M' moving with a constant speed of 10 m/s. Car N is behind it by 50 m with initial speed of 5 m/s. At what rate it must accelerate so that it will reach the same position as reached by car M within 5 s.	75/12 = a	75/11.5 = a	75/12.5 = a	75/10.5 = a	**c**
45	A car starts from rest and moves in a straight line with uniform acceleration. It covers 80 m in 9th second. Find the uniform acceleration of the car.	a = 9.41 m/s^2	a = 8.41 m/s^2	a = 5.41 m/s^2	a = 9.71 m/s^2	**b**
46	From the top of a tower 30 m high, a stone is thrown vertically up with a velocity of 8 m/s. After how much time it will hit the ground. (g = 9.8 m/s^2)	t = 1.42 s.	t = 9.42 s	t = 3.42 s.	t = 3.99 s	**c**
47	Water dips from a tap at the rate of 5 drops per second. Determine the vertical separation between first two drops just when 2nd drop leaves the tap.	0.96 m	0.196 m	0.200 m	0.100 m	**b**
48	Bus starts from rest at A, accelerates at 0.8 m/s^2 till it reaches a speed of 12 m/s. Determine distance travelled.	s = 9 m	s = 90 m	s = 50 m	s = 95 m	**b**
49	Bus starts from rest at A, accelerates at 0.8 m/s^2 till it reaches a speed of 12 m/s. Determine the time of travel.	t = 10 s	t = 25 s	t = 15 s	t=70 s	**c**
50	A balloon is rising the velocity of 2 m/s. When a bag of sand is released. If its height at the time of release is 100 m, how long does it take for the sand to reach the ground (g = 9.8 m/s^2)	t = 4.3 s.	t = 9.73 s.	t = 8.73 s.	t = 4.73 s.	**d**
51	A balloon is rising with a velocity of 2 m/s. when a bag of sand is released. If its height at the time of release is 100 m, determine the striking velocity of the sandbag (g = 9.8 m/s^2)	V_s = 40.317 m/s	V_s = 44.317 m/s	V_s = 48.317 m/s	V_sVs = 42.317 m/s	**b**
52	A stone is thrown vertically upwards from the top of a building 21 m high with a velocity of 14 m/s. Determine the velocity at any instant `t'. (g = 9.8 m/s^2)	V = 20 – (9.8 x t)	V = 14 – (9.8 x t)	V = 22 – (9.8 x t)	V = 2 – (9.8 x t)	**b**
53	A stone thrown vertically upwards from the top of a building 21 m high with a velocity of 14 m/s. Determine the expression for its position w.r.t. ground at any instant `t' (g = 9.8 m/s^2)	S = 21 + 14 t – ½ x 9.8 t^2	S = 21 + 14 t – ½ x 8 t^2	S = 21 + 16 t – ½ x 9.8 t^2	S = 21 + 13 t – ½ x 9.8 t^2	**a**
54	A stone is thrown vertically upwards from the top of a building 21 m high with a velocity of 14 m/s. Determine the highest elevation reached by the stone from ground (g = 9.8 m/s^2).	S = 21 + 14 t – ½ x 9.8 t^2	S = 21 + 14 t – ½ x 8 t^2	S= 21 + 16 t – ½ x 9.8 t^2	S = 21 + 13 t – ½ x 9.8 t^2	**a**
55	A stone is thrown vertically upwards from the top of a building 21 m high with a velocity of 14 m/s. Determine the distance travelled by the stone to reach the highest point.	Actual from ground = 30m	Actual from ground = 31m	Actual from ground = 71m	Actual from ground = 21m	**b**
56	A stone is thrown vertically upwards from the top of a building 21 m high with a velocity of 14 m/s. Determine the time when stone reaches the maximum height. g = 9.8 m/s^2	t = 1.429 s.	t = 1.400 s.	t = 1.4 s.	t = 1.29 s.	**a**
57	A stone is thrown vertically upwards from the top of a building 21 m high with a velocity of 14 m/s. Determine the time required for the stone to reach the ground. g = 9.8 m/s^2.	3.900 s.	1.944 s.	2.944 s.	3.944 s	**d**
58	A stone is thrown vertically upwards from the top of a building 21 m high with a velocity of 14 m/s. Determine the stricking velocity of stone at the ground.	V = 24.64 m/s.	V = 20.64 m/s.	V = 245.64 m/s.	V = 246.4 m/s.	**a**

Sr. No.	Question	A	B	C	D	ans
59	When an object moves in a fixed direction with uniform acceleration, the speed-time graph is a	parabola	inclined straight line	ellipse	Curve	**b**
60	A car starts from rest and covers a distance of 100 m in one second with uniform acceleration. Its acceleration is	100 m/s^2	50 m/s^2	200 m/s^2	non of the above	**c**
61	From the top of a tower 30 m high, a stone is thrown vertically up with a velocity of 8 m/s. After how much time it will hit the ground. ($g = 9.8\ m/s^2$)	1.42 s	3.42 s	9.42 s	3.99 s	**b**
62	A particle falling freely under gravity falls 50 m in certain second. Determine the initial velocity to cover these 50 m.	15.9 m/s	50 m/s	54.9 m/s	54 m/s	**c**
63	A particle falling freely under gravity falls 50 m in certain second. Determine the velocity at the end of this second.	45.1 m/s	-45.1 m/s	-75.1 M/S	-15.1 m/s	**b**
64	A stone is projected up from top of a building 120 m high with initial velocity of 25 m/s.. Find the time taken by the stone to reach the ground ($g = 9.87\ m/s^2$)	6.12 s	1.12 s	8.12 s	8 s	**c**
65	A bus starts from rest at A, accelerates at 0.8 m/s^2 till it reaches a speed of 12 m/s. Determine distance travelled.	9 m	90 m	50 m	95 m	**b**
66	A bus starts from rest at A, accelerates at 0.8 m/s^2 till it reaches a speed of 12 m/s. Determine the time of travel.	10 s	25s	15 s	70 s	**c**
67	A bus starts from rest at A, accelerates at 0.8 m/s^2 till it reaches a speed of 12 m/s. Brakes are applied and then it stops at B, 300 m from A. Determine the acceleration.	0.343 m/s^2	-0.343 m/s^2	-1.343 m/s^2	-0.43 m/s^2	**b**
68	A bus starts from rest at A, accelerates at 0.8 m/s^2 till it reaches a speed of 12 m/s. Brakes are applied and then it stops at B, 300 m from A. Determine the total time of travel	10 s	70 s	5 s	50 s	**d**
69	If the gravitational acceleration at any place is doubled, then the weight of a body will be	g/2	g	$\sqrt{2}g$	2g	**d**
70	The velocity of a body on reaching the ground from a height h, is	$\sqrt{2}gh$	2gh	$\sqrt{2}g/h$	gh	**a**
71	When the distance covered by an object is directly proportional to time, it is said to travel with	zero velocity	constant speed	constant acceleration	uniform acceleration	**b**
72	For a particle moving along a straight line, position x is expressed by $x = t^4-2t^3+1$ where x is in m and t is in s. The velocity attained by the particle at 1.5 s will be	minimum	maximum	zero	none of the above.	**c**
73	For a particle moving along a straight line, position x is expressed by $x = t^3- t^2- t +1$ where x is in m and t is in s. Expression for velocity v is	$v = t^2 – t$ (m/s)	$v = 3t^2 - t - 1$ (m/s)	$v = 3t^2- 2t - 1$ (m/s)	none of the above.	**c**
74	For a particle moving along a straight line, position x is expressed by $x = t^3- t^2- t +1$ where x is in m and t is in s. Expression for acceleration is	$a = t^2- t\ (m/s^2)$	$a = 6t - 2(m/s^2)$	$a = 2t - 2\ (m/s^2)$	$a = -2t^2 +1$ (m/s^2)	**b**
75	For a particle moving along a straight line, position x is expressed by $x = t^3- t^2- t +1$ where x is in m and t is in s. Particle's velocity when t =0 s and 1 s is given by	-1 m/s, 0 m/s	0 m/s, 1 m/s	-1 m/s, 2 m/s	2 m/s, 2 m/s	**a**
76	For a particle moving along a straight line, position x is expressed by $x = t^3- t^2- t +1$ where x is in m and t is in s. Particle's acceleration when t=1/3 s is	2/9 m/s^2	-1/9 m/s^2	0 m/s^2	1 m/s^2	**c**

Sr. No.	Question	A	B	C	D	ans
77	For a particle moving along a straight line, position x is expressed by $x = t^3 - t^2 - t + 1$ where x is in m and t is in s. The minimum acceleration attained by the particle is	-6 m/s^2	-1 m/s^2	-2 m/s^2	0 m/s^2	**c**
78	For a particle moving along a straight line, position x is expressed by $x = t^3 - t^2 - t + 1$ where x is in m and t is in s. The minimum acceleration attained by the particle at t =	0 s	0.5 s	1 s	none of the above.	**a**
79	For a particle moving along a straight line, position x is expressed by $x = t^3 - t^2 - t + 1$ where x is in m and t is in s. The acceleration attained by the particle will be zero at	t = 1/3 s	t = 0 s	t = 1 s	none of the above.	**a**
80	For a particle moving along a straight line, position x is expressed by $x = t^3 - t^2 - t + 1$ where x is in m and t is in s. The minimum position will be attained by the particle at	t = 1 s	t = 0 s	t = 1/3 s	none of the above.	**a**
81	For a particle moving along a straight line, position x is expressed by $x = t^3 - t^2 - t + 1$ where x is in m and t is in s. The minimum position attained by the particle will be	1m	2m	0m	none of the above.	**c**
82	For a particle moving along a straight line, position x is expressed by $x = 2t^3 + 10$ where x is in m and t is in s. Expression for velocity v is	$v = t^2 + 10$ (m/s)	$v = 3t^2 + 10$ (m/s)	$v = 6t^2$ (m/s)	none of the above.	**c**
83	For a particle moving along a straight line, position x is expressed by $x = 2t^3 + 10$ where x is in m and t is in s. Expression for acceleration is	$a = 3t^2 + 10t$ (m/s^2)	$a = 12t$ (m/s^2)	$a = 2t - 10$ (m/s^2)	$a = -2t^2 + 5$ (m/s^2)	**b**
84	For a particle moving along a straight line, position $x = 2t^3 + 10$ where x is in m and t is in s. Particle's velocity when t =0 s and 1 s is given by	0 m/s, 6 m/s	1 m/s, 6 m/s	0 m/s, 10 m/s	2 m/s, 4 m/s	**a**
85	For a particle moving along a straight line, position $x = 2t^3 + 10$ where x is in m and t is in s. Particle's acceleration when t =1 s is	0 m/s^2	-1 m/s^2	12 m/s^2	6 m/s^2	**c**
86	For a particle moving along a straight line, position $x = 2t^3 + 10$ where x is in m and t is in s. The minimum velocity attained by the particle is	-1/3 m/s	-2/3 m/s	0 m/s	1 m/s	**c**
87	For a particle moving along a straight line, position $x = 2t^3 + 10$ where x is in m and t is in s. The minimum velocity is attained by the particle at t =	0 s	0.5 s	1 s	none of the above.	**a**
88	For a particle moving along a straight line, position $x = 2t^3 + 10$ where x is in m and t is in s. The minimum acceleration attained by the particle is	-1 m/s^2	-2 m/s^2	0 m/s^2	2 m/s^2	**c**
89	For a particle moving along a straight line, position $x = 2t^3 + 10$ where x is in m and t is in s. The minimum acceleration attained by the particle at t =	0 s	0.5 s	1 s	none of the above.	**a**
90	For a particle moving along a straight line, position $x = 2t^3 + 10$ where x is in m and t is in s. The velocity attained by the particle will be zero at	t = 0 s	t = 2 s	t = 1 s	none of the above.	**a**
91	For a particle moving along a straight line, position $x = 2t^3 + 10$ where x is in m and t is in s. The acceleration attained by the particle will be zero at	t = 0 s	t = 0.5 s	t = 1 s	none of the above.	**a**

Sr. No.	Question	A	B	C	D	ans
92	For a particle moving along a straight line, position x is expressed by $x = 2t^3+10$ where x is in m and t is in s. The minimum position will be attained by the particle at	t = 0 s	t = 0.5 s	t = 1 s	none of the above.	**a**
93	For a particle moving along a straight line, position x is expressed by $x = 2t^3+10$ where x is in m and t is in s. The minimum position attained by the particle will be	0 m	3 m	10 m	none of the above.	**c**
94	For a particle moving along a straight line, position x is expressed by $x = t^6-2t^4$ where x is in m and t is in s. Expression for velocity v is	$v = t^5 – 2t^3$ (m/s)	$v = 3t^5+4t^3 + 1$ (m/s)	$v = 6t^5-8t^3$(m/s)	none of the above.	**c**
95	For a particle moving along a straight line, position x is expressed by $x = t^6-2t^4$ where x is in m and t is in s. Expression for acceleration is	$a = 6t^4-6t^2$ (m/s^2)	$a = 30t^4 - 24t^2$ (m/s^2)	$a = 2t^4 -4t^2$ (m/s^2)	$a = -2t^2 +5$ (m/s^2)	**b**
96	For a particle moving along a straight line, position x is expressed by $x = t^6-2t^4$ where x is in m and t is in s. Particle's velocity when t =0 s and 1 s is given by	0 m/s, -2 m/s	0 m/s, 2 m/s	-1 m/s, 0 m/s	none of the above.	**a**
97	For a particle moving along a straight line, position x is expressed by $x = t^6-2t^4$ where x is in m and t is in s. Particle's acceleration when t =0 s is	1 m/s^2	-1 m/s^2	0 m/s^2	1 m/s^2	**c**
98	For a particle moving along a straight line, position x is expressed by $x = t^6-2t^4$ where x is in m and t is in s. Particle's velocity is zero when t =	0 s	1 s	2 s	none of the above.	**a**
99	For a particle moving along a straight line, velocity v is expressed by $v = 2t^2-8t$ where v is in m/s and t is in s. Expression for acceleration is	a = 4t-8 (m/s^2)	a = 4t +8 (m/s^2)	a = 2t (m/s^2)	$a = 2t^2$ (m/s^2)	**a**
100	For a particle moving along a straight line starting from x = -6m, velocity v is expressed by $v = 2t^2-8t$ where v is in m/s and t is in s. Expression for position x is	x = 4t-8 (m)	x = 4t (m)	x = 2t - 4 (m)	$x = 2t^3/3-4t^2 –$ 6 (m)	**d**
101	For a particle moving along a straight line, velocity v is expressed by $v = 2t^2-8t$ where v is in m/s and t is in s. Particle's acceleration when t = 2 s is	8 m/s^2	4 m/s^2	0 m/s^2	1 m/s^2	**c**
102	For a particle moving along a straight line starting from x = -6m, velocity v is expressed by $v = 2t^2- 8$ where v is in m/s and t is in s. Particle's position x when t = 1 s is	-40/3 m	0 m	15 m	none of the above.	**a**
103	For a particle moving along a straight line starting from x = 6m, velocity v is expressed by $v = 2t^2- 8t$ where v is in m/s and t is in s. The minimum velocity attained by the particle is	8 m/s	0 m/s	-8 m/s	none of the above.	**c**
104	For a particle moving along a straight line starting from x = 6m, velocity v is expressed by $v = 2t^2- 8t$ where v is in m/s and t is in s. The minimum velocity will be attained by the particle at t =	2/3 s	2 s	0 s	none of the above.	**b**
105	For a particle moving along a straight line starting from x = 6m, velocity v is expressed by $v = 2t^2-8t$ where v is in m/s and t is in s. The minimum position x attained by the particle is	-2 m	0 m	-8 m	none of the above.	**d**

Sr. No.	Question	A	B	C	D	ans
106	For a particle moving along a straight line starting from x = 6m, velocity v is expressed by $v = 2t^2-8t$ where v is in m/s and t is in s. The minimum acceleration will be attained by the particle at t =	1 s	0 s	2 s	none of the above.	**b**
107	For a particle moving along a straight line starting from x = 6m, velocity v is expressed by $v = 2t^2-8t$ (m/s) where t is in s. The zero velocity will be attained by the particle at t =	t = 2 and 4 s	t = 0 and 2 s	t = 1 and 2 s	t = 0 and 4 s	**d**
108	For a particle moving along a straight line starting from x = 6m, velocity v is expressed by $v = 2t^2-8t$ where v is in m/s and t is in s. The acceleration attained by the particle will be zero at	t = 2 s	t = 0 s	t = 1 s	none of the above.	**a**
109	For a particle moving along a straight line starting from x = 6m, velocity v is expressed by $v = 2t^2-8t$ where v is in m/s and t is in s. The minimum position attained by the particle at	t = 3 s	t = 0 s	t = 1 s	t = 2 s	**d**
110	For a particle moving along a straight line, velocity v is expressed by $v = 4t^2+5$ where v is in m/s and t is in s. If at t = 0 s, x = 0 m, particle's velocity when t =1 s and 2 s is given by	0 m/s, 5 m/s	9 m/s, 13 m/s	13 m/s, 21 m/s	9 m/s, 21 m/s	**d**
111	For a particle moving along a straight line, velocity v is expressed by $v = 4t^2+5$ where v is in m/s and t is in s. Expression for acceleration is	a = 4t+5 (m/s^2)	a = 8t (m/s^2)	a = 2t (m/s^2)	$x = 4t^3/3+5t$ (m)	**b**
112	For a particle moving along a straight line starting from x = 0m, velocity v is expressed by $v = 4t^2+5$ where v is in m/s and t is in s. Expression for position x is	x= 4t+5 (m)	x = 8t (m)	x = 2t (m)	$x = 4t^3/3+5t$ (m)	**d**
113	For a particle moving along a straight line, velocity v is expressed by $v = 4t^2+5$ where v is in m/s and t is in s. Particle's acceleration when t =2 s is	8 m/s^2	16 m/s^2	0 m/s^2	1 m/s^2	**b**
114	For a particle moving along a straight line starting from x = 0m, velocity v is expressed by $v = 4t^2+5$ where v is in m/s and t is in s. The minimum velocity attained by the particle is	8 m/s	4 m/s	0 m/s	none of the above.	**d**
115	For a particle moving along a straight line starting from x = 0m, velocity v is expressed by $v = 4t^2+5$ where v is in m/s and t is in s. The zero velocity will be attained by the particle at t =	2 s	4 s	0 s	none of the above.	**d**
116	For a particle moving along a straight line starting from x = 0m, velocity v is expressed by $v = 4t^2+5$ where v is in m/s and t is in s. The minimum position attained by the particle is	2 m	4 m	0 m	none of the above.	**c**
117	For a particle moving along a straight line starting from x = 0m, velocity v is expressed by $v = 4t^2+5$ where v is in m/s and t is in s. The minimum acceleration attained by the particle is	2 m/s^2	-1 m/s^2	0 m/s^2	none of the above.	**c**
118	For a particle moving along a straight line starting from x = 0m, velocity v is expressed by $v = 4t^2+5$ where v is in m/s and t is in s. Particle's position x =0 m when t =	0 s	1 s	3 s	none of the above.	**a**

Sr. No.	Question	A	B	C	D	ans
119	For a particle moving along a straight line, velocity v is expressed by $v = 3t^2 - 2t - 1$ where v is in m/s and t is in s. Expression for acceleration is	$a = 3t-2$ (m/s^2)	$a = 6t -2$ (m/s^2)	$a = 3t$ (m/s^2)	$a = 3t^2$ (m/s^2)	**b**
120	For a particle moving along a straight line starting from x = 1m, velocity v is expressed by $v = 3t^2 - 2t - 1$ where v is in m/s and t is in s. Expression for position x is	x= 6t+10 (m)	x = 6t (m)	x = 2t +5 (m)	$x = t^3 - t^2 - t + 1$ (m)	**d**
121	For a particle moving along a straight line, acceleration a is expressed by $a = 2t - 1 (m/s^2)$ where t is in s. If at t = 0 s, x = 5 m and v = -10 m/s Expression for position x is	$x = 4t^3/3+5t +10$ (m)	$x = t^3/3-t^2/2-10t + 5$ (m)	$x = 4t^2+5t +10$ (m)	none of the above.	**b**
122	For a particle moving along a straight line, acceleration a is expressed by $a = 2t - 1$ (m/s^2) where t is in s. If at t = 0 s, x = 5 m and v = -10 m/s Expression for velocity v is	$v = 4t^2 + 5$ (m/s)	$v = t^2+2t + 5$ (m/s)	$v = t^2 - t - 10$ (m/s)	none of the above.	**c**
123	For a particle moving along a straight line, acceleration a is expressed by $a = 2t - 1$ (m/s^2) where t is in s. If at t = 0 s, x = 5 m and v = -10 m/s, particle's velocity when t=1s is	0	-10	15	none of the above.	**b**
124	For a particle moving along a straight line, acceleration a is expressed by $a = 2t - 1$ (m/s^2) where t is in s. If at t = 0 s, x = 5 m and v = -10 m/s, particle's position when t =1s is	10 m	5.167 m	-5.167 m	none of the above.	**c**
125	For a particle moving along a straight line, acceleration a is expressed by $a = 2t - 1$ (m/s^2) where t is in s and at t = 0 s, x = 5 m and v = -10 m/s. The minimum velocity attained by the particle is	-10 m/s	-13 m/s	-10.25 m/s	0 m/s	**c**
126	For a particle moving along a straight line, acceleration a is expressed by $a = 2t - 1$ (m/s^2) where t is in s and at t = 0 s, x = 5 m and v = -10 m/s. The minimum velocity will be attained by the particle at t =	2/3 s	2 s	1 s	none of the above.	**d**
127	For a particle moving along a straight line, acceleration a is expressed by $a = 2t - 1$ (m/s^2) where t is in s and at t = 0 s, x = 5 m and v = -10 m/s. The minimum acceleration attained by the particle is	-1/3 m/s^2	-2 m/s^2	none of the above.	0 m/s^2	**c**
128	For a particle moving along a straight line, acceleration a is expressed by $a = 2t - 1$ (m/s^2) where t is in s and at t = 0 s, x = 5 m and v = -10 m/s. The minimum acceleration will be attained by the particle at t =	0 s	2 s	1 s	none of the above.	**a**
129	For a particle moving along a straight line, acceleration a is expressed by $a = 2t - 1$ (m/s^2) where t is in s and at t = 0 s, x = 5 m and v = -10 m/s. The velocity attained by the particle will be zero at	t = 3.7 s	t = 0 s	t = 1.7 s	none of the above.	**a**
130	For a particle moving along a straight line, acceleration a is expressed by $a = 2t - 1$ (m/s^2) where t is in s and at t = 0 s, x = 5 m and v = -10 m/s. The acceleration attained by the particle will be zero at	t = 0.5 s	t = 0 s	t = 1 s	none of the above.	**a**
131	For a particle moving along a straight line, acceleration a is expressed by $a = 2t - 1$ (m/s^2) where t is in s and at t = 0 s, x = 5 m and v = -10 m/s. The minimum position will be attained by the particle at	t = 3.7 s	t = 0 s	t = 0.5 s	none of the above.	**a**

Sr. No.	Question	A	B	C	D	ans
132	For a particle moving along a straight line, acceleration a is expressed by $a = 2t - 1$ (m/s^2) where t is in s and at t = 0 s, x = 5 m and v = -10 m/s. The minimum position attained by the particle will be	5 m	0 m	-10.25 m	21.96m	**d**
133	For a particle moving along a straight line in resisting medium, acceleration a is expressed by $a = -kv$ (m/s^2) where v is in m/s, k is in s^{-1} and at t = 0 s, x = 0 m and $v = v_o$ m/s. The expression for velocity v of the particle is	$v = e^{-kt} - v_o$ (m/s)	e^{-kt} (m/s)	$v = v_o e^{-kt}$ (m/s)	none of the above.	**c**
134	For a particle moving along a straight line in resisting medium, velocity v is expressed by $v = v_o e^{-kt}$ (m/s), where t is in s, k is in s^{-1} and at t = 0 s, x = 0 m and $v = v_o$ m/s. The expression for acceleration a of the particle is	$a = kv$ (m/s^2)	$a = -kv$ (m/s^2)	$a = -kv^2$ (m/s^2)	none of the above.	**b**
135	For a particle moving along a straight line in resisting medium, velocity v is expressed by $v = v_o e^{-kt}$ (m/s), where t is in s, k is in s^{-1} and at t = 0 s, x = 0 m and $v = v_o$ m/s. The expression for position x of the particle is	$x = (1 + e^{-kt})\, v_o/k$ (m)	$x = (1 - e^{-kt})\, v_o/k$ m)	$x = (v_o + 1)\, e^{-kt}$ (m)	none of the above.	**a**
136	For a particle moving along a straight line in resisting medium, position x is expressed by $x = (1 + e^{-kt})\, v_o/k$ (m), where t is in s, k is in s^{-1} and at t = 0 s, x = 0 m and $v = v_o$ m/s. The expression for velocity v of the particle is	$v = e^{-kt} - v_o$ (m/s)	$v = e^{-kt}$ (m/s)	$v = v_o e^{-kt}$ (m/s)	none of the above.	**c**
137	For a particle moving along a straight line in resisting medium, acceleration a is expressed by $a = -kv$ (m/s^2) where k is in s^{-1} and at t = 0 s, x = 0 m and $v = v_o$ m/s. The expression for position x of the particle is	$x = -(v - v_o)/k$ (m)	$(v + v_o)/k$ (m)	$x = (v_o + 1)\, k$ (m)	none of the above.	**a**
138	For a particle moving along a straight line in resisting medium, position x is expressed by $x = -(v - v_o)/k$ (m) where v is in m/s, k is in s^{-1} and at t = 0 s, x = 0 m and $v = v_o$ m/s. The expression for acceleration a of the particle is	kv (m/s^2)	$-kv$ (m/s^2)	$-kv^2$ (m/s^2)	none of the above.	**b**
139	For a particle moving along a straight line in resisting medium, acceleration a is expressed by $a = -kv$ (m/s^2) where v is in m/s, k is in s^{-1} and at t = 0 s, x = 0 m and $v = v_o$ m/s. The expression for velocity v of the particle is	$v = v_o - 1$ (m/s)	$v = v_o + kx$ (m/s)	$v = v_o - kx$ (m/s)	none of the above.	**c**
140	For a particle moving along a straight line in resisting medium, velocity v is expressed by $v = v_o - kx$ (m/s) where x is in m, k is in s^{-1} and at t = 0 s, x = 0 m and $v = v_o$ m/s. The expression for acceleration a of the particle is	$a = -kv$ (m/s^2)	$a = kv$ (m/s^2)	$a = -kv^2$ (m/s^2)	none of the above.	**a**
141	For a particle moving along a straight line in resisting medium, position x is expressed by $x = -(v - vo)/k$ (m) where v is in m/s, k is in s-1 and at t = 0 s, x = 0 m and v = vo m/s. The expression for velocity v of the particle is	$v = v_o - 1$ (m/s)	$v = v_o + kx$ (m/s)	$v = v_o - kx$ (m/s)	none of the above.	**c**
142	For a particle moving along a straight line in resisting medium, velocity v is expressed by $v = vo - kx$ (m/s) where x is in m, k is in s-1 and at t = 0 s, x = 0 m and v = vo m/s. The expression for position x of the particle is	$x = -(v - v_o)/k$ (m)	$x = (v + v_o)/k$ (m)	$x = (v_o + 1)\, k$ (m)	none of the above.	**a**
143	In the case of a rectilinear uniform motion, distance-time graph is a	parabola	straight line	curved line	rectangle	**b**
144	When a graph of one quantity versus another , results in a straight line, the quantities are	directly proportional	constant	inversely proportional	independent of each other	**a**
145	What do you infer, if S-t graphs of two cyclists meet at a point?	They collide	They pass each other	They are at rest	They are starting from rest	**b**

Sr. No.	Question	A	B	C	D	ans
146	Name the physical quantity which we get from slope of S-t graph.	Speed	Displacement	Distance	Time	**a**
147	Distance-time graph is a straight line for _____ motion.	variable	non uniform	rectilinear	circular	**c**
148	The slope of a v-t graph gives _____.	acceleration	velocity	speed	distance	**a**
149	In curvilinear motion , velocity of a particle is always	Normal to path of particle	Tangential to path of particle	Depends on acceleration	None of above	**b**
150	In curvilinear motion, acceleration of a particle is always	Normal to path of particle	Tangential to path of particle	Depends on velocity of particle	Towards concave side of path of particle	**d**
151	In curvilinear motion, acceleration of a particle is always	Normal to path of particle	Tangential to path of particle	Along the direction of velocity	Never tangential to the path of particle.	**d**
152	Motion of a particle is defined by $x = 4 + 3t^2$ and $y = 3 + t^3$, acceleration of particle at t = 0 is	5 m/s^2	3 m/s^2	4 m/s^2	6 m/s^2	**d**
153	Motion of a particle is defined by $x = 4t + 3t^2$ and $y = 3 + t^3$, initial velocity of particle is	0 m/s	4 m/s	3 m/s	5 m/s	**b**
154	Particle moves along path defined by $y^2 = 9x$, where x and y are in m. the x co-ordinate is given by $x = t^2$ what is the y component of velocity at t = 2 s	0 m/s	9 m/s	3 m/s	81 m/s	**c**
155	A particle moves along a path $r = (8t^2)i + (t^3 + 5)j$, magnitude of particles velocity at t = 3 s is	55.07 m/s	5.507 m/s	50.5 m/s	24.1 m/s	**a**
156	Motion of particle is defined by $x = 1 - t$ and $y = t^2$, what is the equation of path	$y = (x - 1)^2$	$y = (1 - x)^2$	$y = (x + 1)^2$	$y = (x - 1)^{2/3}$	**b**
157	Motion of particles A and B is described by the position vectors $r_A = 3ti + 9t(2 - t)j$ and $r_B = 3(t^2 - 2t + 2)i + 3(t - 2)j$. time at which the two particles collide is	2 s	4.5 s	3 s	9 s	**a**
158	In case of tracking of space vehicles ------ system of coordinates is useful	Cartesian	polar	path	All	**b**
159	If acceleration of particle is zero, it implies	Velocity of particle is constant	Velocity of particle is zero	Radius of curvature is zero	Velocity of particle is constant and travels along a straight path	**d**
160	Hodograph is the curve	Joining the ends of velocity vectors drawn from a common point	Joining acceleration vectors	Joining the velocity vector tail to head	None of above	**a**
161	Acceleration of a particle is tangential to	Path of a particle	Hodograph	Radial direction	Normal direction	**b**
162	A particle starting from the origin is subjected to acceleration $a_x = -2\ m/s^2$ and $a_y = 2\ m/s^2$ initial velocity of particle is 40 m/s at 30^0 to x-axis. Find x component of velocity at t = 4s.	26.64 m/s	22.44 m/s	28.00 m/s	46.75 m/s	**a**
163	A particle starting from the origin is subjected to acceleration $a_x = -2m/s^2$ and $a_y = 2\ m/s^2$ initial velocity of particle is 40 m/s at 30^0 to x-axis. Find y component of velocity at t =4s.	26.64 m/s	22 . 44 m/s	28.00 m/s	46.75 m/s	**c**
164	A particle is moving in x-y plane with y component of velocity, vy = 6t m/s, where t is in seconds. If $ax = 3t\ m/s^2$, when t = 0, x = 3m, y = 0 and vx = 0. What is value of x when t = 2s.	123 m	34 m	23 m	67.08 m	**d**

Sr. No.	Question	A	B	C	D	ans
165	If the motion of particle is defined by $x = 2t^2$ and $y = 2t^{-2}$ then the path of particle is	$x^2/y^2 = 2$	$x^2 y^2 = 2$	$y^2 = 2x^2$	$xy = 4$	**d**
166	Position vector of a point along a curved path is r =[$(t^3 - t^2)i + t^4 j$] m. velocity of particle at t = 2s	32.98 m/s	43 m/s	23 m/s	12 m/s	**a**
167	Position vector of a point along a curved path is r =[$(t^3 - t^2)i + t^4 j$] m. x component of acceleration of particle at t = 2s	2 m/s^2	10 m/s^2	6 m/s^2	8 m/s^2	**b**
168	Position vector of a point along a curved path is r =[$(t^3 - t^2)i + t^4 j$] m. y component of acceleration of particle at t = 1s	3 m/s^2	6 m/s^2	12 m/s^2	9 m/s^2	**c**
169	The position vector of a particle moving in x-y plane at time t = 4s is 3.2i – 4.6j m again at t = 4.1s, position vector is 3.28i – 4.66j m. What is average velocity component in y-direction?	0.8 m/s	0.6 m/s	(- 0.6) m/s	1 m/s	**b**
170	If v = 8ti + 9t2j m/s, where t is in seconds, determine the distance from the origin to the particle when t = 1s.	4 m	5 m	3 m	None of the above	**b**
171	When t = 0 a particle is at the origin. If its x component of velocity is constant, v = 4 m/s, calculate the distance it travels along the x axis in t = 2s.	8.5 m	8 m	10 m	None of the above	**b**
172	If its y component of acceleration is $a_y = 3$ m/s^2, calculate how far it travels along the y axis in t = 2s. When t = 0, $v_y = 0$.	9 m	12 m	6 m	None of the above	**c**
173	19. The position of a particle is defined as $x = 2t^2 + 5$ and $y = t^3 – 9$, where x and y is in m and t is in s. The velocity of particle at t = 1 s is	5 m/s	7 m/s	1 m/s	None of the above	**a**
174	The velocity of the particle is expressed as $v = t^2 - 8t + 12$, where v is in m/s and t is in s. Determine the time at which velocity is zero.	6 s	2 s	2 and 6 s	None of the above	**c**
175	Correct meaning of curvilinear motion particle is	Velocity and acceleration are tangential to the path	Velocity is tangential and acceleration is normal to the path	Velocity is normal and acceleration is tangential to the path	Velocity is tangential and acceleration is never tangential to the path.	**d**
176	If motion of particle is expressed as $x = t^2 + 4$ and $y = t^2 - 4$ then at t = 2 s, the angle θ made by velocity with x axis is	0^0	30^0	45^0	None of the above	**c**
177	If motion of particle is expressed as $x = t^2 + 4$ and $y = t^2 - 4$ then the velocity at t = 2 s, is	4 m/s	5 m/s	$4\sqrt{2}$ m /s	10 m/s.	**c**
178	If velocity of particle is expressed as $v_x = t^2 + 4$ m/s and $v_y = t^2 - 4$ m/s then the acceleration at t = 2 s, is	4 m /s^2	5 m /s^2	10 m /s^2	$4\sqrt{2}$ m /s^2	**d**
179	At the point on the curve, the normal acceleration $a_n = 0$ because at that point radius of curvature becomes --------	Zero	One	Infinite	None of these	**c**
180	The position of a particle moving on curvilinear path are defined by $x = 2 + 3t^2$ and $y = 3 + t^3$, the magnitude of velocity at t = 2 s is	9 m/s	12 m/s	17 m/s	24 m/s	**c**
181	A particle moves along the path $y^2 = 9x$, where x and y are in meters. The x co-ordinate of the particle at any time is given by $x = t^2$. Determine y component of velocity at t = 3 s	0	3m/s	9 m/s	81 m/s	**b**

Sr. No.	Question	A	B	C	D	ans
182	The motion of particle in x-y plane is defined by x = t^3 + 2 t^2 + 4 t and y = 5 t + 2 t + 3t where x and y are in meters and t in s. The velocity of a particle when t = 0 is	4 m/s	5 m/s	16 m/s	25 m/s	**b**
183	If velocity of particle is expressed as $v_x = t^2 + 4$ m/s and $v_y = t^2 - 4$ m/s then the acceleration at t = 2 s, is	4 m/s^2	5 m/s^2	$4\sqrt{2}$ m/s^2	10 m/s^2	**c**
184	If x = t^2 + 4 m and y = t^2 - 4 then at t = 2s, the angle θ made by velocity with x axis is	00^0	30^0	45^0	60^0	**c**
185	If $v_x = t^2 + 4$ m/s and $v_y = t^2 - 4$ m/s then at t = 2 s, the angle θ made by acceleration	00^0	30^0	45^0	60^0	**c**
186	If $v_x = t^2 + 4$ m/s and $v_y = t^2 - 4$ m/s then at t = 2 s, the angle θ made by velocity with x-axis is	00^0	30^0	45^0	60^0	**a**
187	If s_x = a sin ωt m and s_y = a cos ωt m then at t = 3 s, the magnitude of displacement is	4 m	5 m	a m	10 m	**c**
188	A shell is fired from a gun barrel with a certain velocity will have maximum range if it fired with what angle with the horizontal plane.	0^0	30^0	45^0	90^0	**c**
189	A projectile is projected with a certain velocity at an angle θ with the horizontal plane. The horizontal distance traveled by the projectile is proportional to	sin θ	sin3 θ	$\sin^2 \theta$	sin2 θ	**d**
190	A projectile is projected with a certain velocity at an angle θ with the horizontal plane. The maximum height of a flight of the projectile is proportional to	sin θ	sin3 θ	$\sin^2 \theta$	sin2 θ	**c**
191	A particle having v = 4i + 3j at any instant. Total acceleration is 10 m/s^2 at 30^0 with the velocity, determine a_x.	3.93 m/s^2	4.93 m/s^2	10 m/s^2	7 m/s^2	**a**
192	A particle having v = 4i + 3j at any instant. Total acceleration is 10 m/s^2 at 30^0 with velocity, determine a_y.	10.2 m/s^2	9.2 m/s^2	15 m/s^2	20 m/s^2	**b**
193	A particle having v = 4i + 3j at any instant. Total acceleration is 10 m/s^2 at 30^0 with velocity, determine a_n.	2.5 m/s^2	7.5 m/s^2	5 m/s^2	10 m/s^2	**c**
194	A particle having v = 4i + 3j at any instant. Total acceleration is 10 m/s^2 at 30^0 with velocity, determine a_t.	2.5 m/s^2	7.5 m/s^2	5 m/s^2	8.66 m/s^2	**d**
195	The velocity of a particle moving in the x-y plane is given by 6.12 i + 3.24 j m/s at time t = 3.65 s. Its average acceleration during the next 0.02 s is 4i + 6j m/s2. Determine the angle θ between the average acceleration vector and velocity vector at t	27.9^0	28.9^0	27^0	29.9^0	**a**
196	A particle moving in the x-y plane has a velocity at time t = 6 s is given by 4i + 5j m/s and at t = 6.1 s its velocity has become 4.3i + 5.4 j m/s. calculate the magnitude of its average acceleration during the 0.1 s interval.	5.55 m/s^2	6.00 m/s^2	0.5 m/s^2	0.55m/s^2	**c**
197	The position vector of a particle moving in the x-y plane at time t = 3.60 s is 2.76i-3.28j m. At t = 3.62 s its position vector has become 2.79i - 3.33j m. Determine the magnitude of its average e velocity during this interval.	2.92 m/s	2.00 m/s	2.99 m/s	2.22 m/s	**a**
198	The motion of a particle is described by the following equations x = t^2 + 8t + 4, y = t^3 + $3t^2$ + 8t + 4, determine initial velocity of the particle.	11.31 m/s	33.33 m/s	23.32 m/s	11.13 m/s	**a**
199	The position of a particle is expressed as = ($4t^2$ + 2)i + ($2t^3$ + 4)j, determine the velocity of a particle at t = 1s.	6 m/s	12 m/s	$6\sqrt{2}$ m/s	10 m/s	**d**

Sr. No.	Question	A	B	C	D	ans
200	The position of a particle is defined as $x = 2t^2 + 5$ and $y = t^3 - 9$, where x and y is in m and t is in s. determine the velocity of particle at t = 1 s is	5 m/s	7 m/s	1 m/s	None of these	**a**
201	If v_x = a sin ωt m/s and v_y = a cos ωt m/s then at t = 3 s, the angle θ made by velocity with y-axis is	ω	2 ω	3 ω	None of these	**c**
202	If v_x = a sin ωt m/s and v_y = a cos ωt m/s then at t =3 s, the angle θ made by acceleration with x-axis is	ω	2 ω	3 ω	180 - 3 ω	**d**
203	If s_x = a sin ωt m and s_y = a cos ωt m then at t = 3s, the angle θ made by velocity with x-axis is	ω	2 ω	3 ω	180 - 3 ω	**d**
204	If $a_x = t^2 + t + 4$ m/s^2 and a_y = 8t m/s^2 then at t = 1 s, the angle θ made by acceleration with x-axis is	$\tan^{-1}$ 4/3	$\tan^{-1}$ 5/4	$\tan^{-1}$ 5/3	None of these	**a**
205	If $s_x = t^2 + t + 4$ m and s_y = 4t m then at t = 1 s, the magnitude of velocity is	4 m/s	5 m/s	20 m /s	10 m/s	**b**
206	If $v_x = t^2 + t + 4$ m/s and v_y = 4t m/s then at t = 1 s, the magnitude of acceleration is	4 m/s^2	5 m/s ^{2}	20 m /s^2	10 m/s^2	**b**
207	If $s_x = t^2 + t + 4$ m and s_y = 4t m then at t = 1 s, the angle θ made by velocity with x-axis is	$\tan^{-1}$ 4/3	$\tan^{-1}$ 5/4	$\tan^{-1}$ 5/3	None of these	**a**
208	If $v_x = t^2 + t + 4$ m/s and v_y = 4t m/s then at t = 1 s, the angle θ made by acceleration with x-axis is	$\tan^{-1}$ 4/3	$\tan^{-1}$ 5/4	$\tan^{-1}$ 5/3	None of these	**a**
209	If $s_x = t^2 + 2t + 4$ m and s_y = 8t m then at t = 2 s, the magnitude of displacement is	4 m	5 m	20 m	10 m	**c**
210	If $v_x = t^2 + 2t + 4$ m/s and v_y = 8t m/s then at t = 2 s, the magnitude of velocity is	4 m/s	5 m/s	20 m/s	10 m/s	**c**
211	If $a_x = t^2 + 2t + 4$ m/s^2 and a_y = 8t m/s^2 then at t = 2 s, the magnitude of acceleration is	4 m/s^2	5 m/s ^{2}	20 m/s^2	10 m/s^2	**c**
212	If $s_x = t^2 + 2t + 4$ m and s_y = 8t m then at t = 2 s, the angle θ made by total displacement with x-axis is	$\tan^{-1}$ 4/3	$\tan^{-1}$ 5/4	$\tan^{-1}$ 5/3	None of these	**a**
213	If $a_x = t^2 + 2t + 4$ m/s^2 and a_y = 8t m/s^2 then at t = 2 s, the angle θ made by acceleration with x-axis is	$\tan^{-1}$ 4/3	$\tan^{-1}$ 5/4	$\tan^{-1}$ 5/3	None of these	**a**
214	If $s_x = t^2 + 2t + 4$ m and $s_y = 2t^2$ m then at t = 2 s, the magnitude of velocity is	4 m/s	5 m/s	20 m/s	10 m/s	**d**
215	If $v_x = t^2 + 2t + 4$ m/s and $v_y = 2t^2$ m/s then at t = 2 s, the magnitude of acceleration is	4 m/s^2	5 m/s ^{2}	20 m /s^2	10 m/s^2	**d**
216	If $s_x = t^2 + 2t + 4$ m and $s_y = 2t^2$ m then at t =2 s, the angle θ made by velocity with x-axis is	$\tan^{-1}$ 4/3	$\tan^{-1}$ 5/4	$\tan^{-1}$ 5/3	None of the above	**a**
217	If $v_x = t^2 + 2t + 4$ m/s and $v_y = 2t^2$ m/s then at t = 2 s, the angle θ made by acceleration with x-axis is	$\tan^{-1}$ 4/3	$\tan^{-1}$ 5/4	$\tan^{-1}$ 5/3	None of the above	**a**
218	If $v_x = t^2 + 2t + 4$ m/s and v_y = 8t m/s then at t = 2 s, the angle θ made by velocity with x-axis is	$\tan^{-1}$ 4/3	$\tan^{-1}$ 5/4	$\tan^{-1}$ 5/3	None of the above	**a**
219	If $s_x = t^2 + t + 4$ m and s_y = 4t m then at t = 3 s, the magnitude of displacement is	4 m	5 m	20 m	10 m	**c**
220	If $v_x = t^2 + t + 4$ m/s and v_y = 4t m/s then at t = 3s, the magnitude of velocity is	4 m/s	5 m/s	20 m/s	10 m/s	**c**
221	If $a_x = t^2 + t + 4$ m/s^2 and a_y = 4t m/s^2 then at t = 3 s, the magnitude of acceleration is	4 m/s^2	5 m/s^2	20 m/s^2	10 m/s^2	**c**
222	If $s_x = t^2 + t + 4$ m and s_y = 4t m then at t = 3 s, the angle θ made by displacement with x-axis is	$\tan^{-1}$ 4/3	$\tan^{-1}$ 5/4	$\tan^{-1}$ 5/3	None of the above	**a**

Sr. No.	Question	A	B	C	D	ans
223	If $a_x = t^2 + t + 4$ m/s^2 and $a_y = 4t$ m/s^2 then at t = 3 s, the angle θ made by acceleration	$\tan^{-1}$ 4/3	$\tan^{-1}$ 5/4	$\tan^{-1}$ 5/3	None of the above	**a**
224	If a particle moves along a curve with a constant speed, then its tangential component of acceleration is	Positive	Negative	Zero	Constant	**c**
225	In curvilinear motion normal component of acceleration represents	Rate of change of magnitude of velocity	Rate of change of direction of velocity	Both a and b	None of the above	**b**
226	A particle travels in a circular path of radius 300 m has an instantaneous velocity of 30 m/s and its velocity is increasing at a constant rate of 4 m/s^2. What is the magnitude of its total acceleration at this instant?	3 m/s^2	5 m/s^2	4 m/s^2	7 m/s^2	**b**
227	If a particle moving in a circular path of radius 5 m and a velocity is expressed as $v = 4t^2$ m/s. What is the magnitude of its total acceleration at t =1s?	8 m/s^2	8.62 m/s^2	3.2 m/s^2	11.2 m/s^2	**b**
228	Magnitude of the normal component of acceleration is	Directly proportional to radius of curvature	Inversely proportional to radius of curvature	Negative	Zero at constant velocity	**b**
229	The direction of the tangential component of acceleration and velocity are always	Perpendicular to each other	In opposite direction	Collinear	In same direction	**c**
230	In polar coordinate system the term dθ/dt is called	Angular velocity	Transverse component of velocity	Radial component of velocity	Tangential component of velocity	**a**
231	In polar coordinate system dr/dt is called	Angular velocity	Transverse component of velocity	Radial component of velocity	Tangential component of velocity	**c**
232	In polar coordinate system rdθ/dt is called	Angular velocity	Transverse component of velocity	Radial component of velocity	Tangential component of velocity	**b**
233	In polar coordinate system d^2r/dt^2 is called	Radial component of acceleration	Transverse component of acceleration	Angular acceleration	None of the above	**d**
234	In polar coordinate system $d^2\theta/dt^2$ is called	Radial component of acceleration	Transverse component of acceleration	Angular acceleration	None of the above	**c**
235	In polar coordinate system $d^2r/dt^2 + 2(dr/dt)(d\theta/dt)$ is called	Radial component of acceleration	Transverse component of acceleration	Angular acceleration	None of the above	**d**
236	In polar coordinate system speed of particle is given by	r	rdθ/dt	2(rdθ/dt) + r	None of the above	**d**
237	If dr/dt is zero for a particle, the particle is	Not moving	Moving in circular path	Moving in a straight line	Moving with constant velocity	**b**
238	If a particle is moving in a circular path with constant velocity , its radial acceleration is	Zero	$-r(d^2\theta/dt^2)$	d^2r/dt^2	(dθ/dt) x (dr/dt)	**b**
239	The radial component of acceleration of particle moving in a curvilinear path is always	Negative	Perpendicular to the transverse component of acceleration	directed towards centre of path	All above	**a**
240	The radial component of velocity of a particle moving in a circular path is always	Zero	Greater than its transverse components	Constant	Less than its transverse components	**a**
241	In polar system 2(dr/dt) x (dθ/dt) is called	Corillus acceleration	Radial acceleration	Transverse acceleration	None of above	**a**
242	Normal component of acceleration is zero if	Path is circular	Velocity is constant	Path is rectilinear	None of above	**c**

Sr. No.	Question	A	B	C	D	ans
243	Positive normal direction in case of path coordinate system is	Normal to tangential component	Always directed towards the centre of curvature	Normal to bi-normal component	All of above	**b**
244	When particle travels along a straight path, then radius of curvature is	Zero	Positive	Negative	Infinity	**d**
245	When particle travels along a circular path, then radius of curvature is	Diameter of circle	Circumference of circle	Area of circle	Radius of circle	**d**
246	Particle travels with a constant velocity of 6 m/s along the circle of radius 6 m, then its normal acceleration is	Zero	4 m/s^2	6 m/s^2	None of the above	**c**
247	An airplane making a turn at constant speed is experiencing	Tangential acceleration	Normal acceleration	Both acceleration	No acceleration	**b**
248	The car is traveling with 18 m/s at the top of the rise having radius of curvature 3 m. If its slow down by 5 m/s^2 , determine the acceleration of the car.	108 m/s^2	5 m/s^2	103 m/s^2	108.12 m/s^2	**d**
249	A particle moving in a circular path of radius 5 m has a velocity function $v = 4t^2$ m/s, its magnitude of total acceleration at t = 1s is	8 m/s^2	3.2 m/s^2	8.62 m/s^2	11.2 m/s^2	**c**
250	Space shuttle goes from rest to 348 m/s in first 12 s of its launch, it's average acceleration is	2.4 m/s^2	174 m/s^2	29 m/s^2	4176 m/s^2	**c**
251	A particle is traversing a curved path of radius 500 m with a speed of 108 kmph, determine normal component of acceleration.	2 m/s^2	2.5 m/s^2	1.8 m/s^2	1 m/s^2	**c**
252	The direction of normal component of acceleration for a particle on curved path is	Always directed towards the centre of curvature	Always away from centre of curvature	Depends on the problem	None of these	**a**
253	Tangential component of acceleration for a particle on curved path reflects	Speed of the particle	Direction of motion of particle	Change in direction of particle	Change in speed of particle	**d**
254	Normal component of acceleration for a particle on curved path represents	Speed of the particle	Direction of motion of particle	Change in speed of particle	Change in direction of motion of particle	**d**
255	At an inflection point on the curve,	$a_v = 0$	$a_t = 0$	$a_n = 0$	a = 0	**c**
256	A car starts from rest on a curve of radius 100 m and accelerates at constant tangential acceleration of 3 m/s^2. Determine the time taken to reach the magnitude of total acceleration of 5 m/s^2.	t = 5 s	t = 6.67 s	t = 3.5 s	t = 7.8 s	**b**
257	If a particle moves along a curve with a constant speed, then it's tangential component of acceleration is	Positive	Negative	Zero	Constant	**c**
258	The magnitude of the normal component of acceleration is	Proportional to radius of curvature.	Inversely proportional to radius of curvature.	Sometimes negative.	Zero when velocity is constant.	**b**
259	The directions of the velocity and tangential component of acceleration are always	Perpendicular to each other.	Collinear.	In the same direction.	In opposite directions.	**b**
260	A particle traveling along a curved path, the normal component of acceleration is equal to	v/ρ	v^2/ρ	$v \times \rho$	v/ρ^2	**b**
261	A train enters a curved horizontal track at a speed of 108 kmph and slows down with constant deceleration to 72 kmph in 12 s. Calculate tangential component of acceleration.	(-0.633) m/s^2	(+0.633) m/s^2	(-0.833) m/s^2	(+0.833) m/s^2	**c**
262	Radius of curvature for a particle moving along a curve y = f(x), is given by	$[1+(dy/dx)^2]^{3/2}/(d^2y/dx^2)$	$[1-(dy/dx)^2]^{3/2}/(d^2y/dx^2)$	$[1+(dy/dx)^{3/2}]^2/(d^2y/dx^2)$	$[1+(dy/dx)^2]^{3/2}/(dy/dx)$	**a**

Sr. No.	Question	A	B	C	D	ans
263	A particle is traversing a curved path of radius 100 m with a speed of 72 kmph , determine normal component of acceleration.	4 m/s^2	10 m/s^2	(-6) m/s^2	1 m/s^2	**a**
264	A rotor 25mm in diameter is spinning at 200 rps. Find normal component of acceleration of a point on rim.	20000 m/s^2	19800 m/s^2	19739 m/s^2	19500 m/s^2	**c**
265	A train starting from rest is moving along curved track with constant acceleration and attains a speed of 60 kmph in 3 minutes. Determine acceleration of the train 1 minute after leaving the station. The radius of curvature of the track is 800 m.	0.1 m/s^2	0.11 m/s^2	0.22 m/s^2	0.2 m/s^2	**a**
266	A train enters a curve of radius 100 m with a velocity of 20 m/s and accelerates uniformly to 30 m/s over a distance of 200 m. Determine the acceleration when the train has covered a distance of 100 m from the start of the curve.	9.62 m/s^2	6.62 m/s^2	1.42 m/s^2	12.72 m/s^2	**b**
267	A rotor 30 mm in diameter is spinning at 300 rps. Find normal component of acceleration of a point on rim.	53295.8 m/s^2	19800 m/s^2	19700 m/s^2	19500 m/s^2	**a**
268	. A particle P moves along a space curve and has a velocity v = 4i + 3j at a certain instant. At the same instant the total acceleration 'a' of the particle has a magnitude of 10 m/s^2 and makes an angle of 30^0 with the velocity. Determine tangential component of acceleration.	7.66 m/s^2	6.66 m/s^2	9.66 m/s^2	8.66 m/s^2	**d**
269	A particle P moves along a space curve and has a velocity v = 4i + 3j at a certain instant. At the same instant the total acceleration 'a' of the particle has a magnitude of 10 m/s^2 and makes an angle of 30^0 with the velocity. Determine normal component of acceleration.	5 m/s^2	6 m/s^2	7 m/s^2	8 m/s^2	**a**
270	. A golfer hits a golf ball with an initial velocity of 50 m/s at an angle of 25^0 with horizontal. Determine the radius of curvature of trajectory described by the ball at start of the trajectory.	281.21 m	292.21 m	270.21m	383.21 m	**a**
271	A golfer hits a golf ball with an initial velocity of 50 m/s at an angle of 25^0 with horizontal. Determine the radius of curvature of trajectory described by the ball at highest point of the trajectory**.**	310.37 m	209.37 m	408.37m	111.37 m	**b**
272	A train starts from rest on a track of radius 700 m. Its speed increases uniformly and after 5 minutes it is 40 m/s. Find total acceleration after 3 minutes.	0.833 m/s^2	5.33 m/s^2	0.0833 m/s^2	0.0533 m/s^2	**a**
273	A car is moving along a curve of radius 400 m at a constant speed of 72 kmph. The breaks are suddenly applied, causing speed to decrease at a constant rate of 1 m/s^2. Determine total acceleration immediately after breaks are applied.	m/s^2	m/s^2	m/s^2	m/s^2	**b**
274	A particle is having velocity v = 4i +3j at any instant. At that instant the total acceleration is 10 m/s^2 at 30^0 with velocity. Determine normal component of acceleration.	5 m/s^2	10 m/s^2	Zero m/s^2	15 m/s^2	**a**
275	A particle is having velocity v = 4i +3j at any instant. At that instant the total acceleration is 10 m/s^2 at 30^0 with velocity. Determine tangential component of acceleration.	5 m/s^2	10 m/s^2	8.66 m/s^2	15.66 m/s^2	**c**

Sr. No.	Question	A	B	C	D	ans
276	A particle is having velocity v = 4i +3j at any instant. At that instant the total acceleration is 10 m/s^2 at 30^0 with velocity. Determine radius of curvature.	15 m	10 m	5 m	8 m	**c**
277	A particle is traversing a curved path with a speed of 72 kmph , if the normal component of acceleration is 2 m/s^2. Determine radius of curvature.	200 m	2000 m	100 m	300 m	**a**
278	A car starts from rest on a curve of radius 50 m and accelerates at constant tangential acceleration of 3 m/s^2. Determine the time taken to reach the magnitude of total acceleration of 5 m/s^2.	t = 10.71 s	t = 4.71 s	t = 1.71 s	t = 9.71 s	**b**
279	A train enters a curved horizontal track at a speed of 108 kmph and slows down with constant deceleration to 72 kmph in time 't' seconds. If the tangential component of acceleration is -0.833m/s^2, determine time 't' in seconds.	20 s	2 s	12 s	11 s	**c**
280	A particle is traversing a curved path of radius 400 m with a speed of 108 kmph, determine normal component of acceleration.	2.25 m/s^2	2.5 m/s^2	1.8 m/s^2	1 m/s^2	**a**
281	A particle is traversing a curved path of radius 400 m with a speed of 72 kmph, determine normal component of acceleration.	2 m/s^2	2.5 m/s^2	1.8 m/s^2	1 m/s^2	**d**
282	A particle is traversing a curved path with a speed of 90 kmph. If the normal component of acceleration is 1 m/s^2. Determine the radius of curvature	200 m	625 m	300 m	825 m	**b**
283	A particle is traversing a curved path with a speed of 72 kmph. If the normal component of acceleration is 2.5 m/s^2. Determine the radius of curvature.	200 m	260m	160 m	525 m	**c**
284	A particle is traversing a curved path with a speed of 90 kmph. If the normal component of acceleration is 2.5 m/s^2. Determine the radius of curvature	250 m	625 m	300m	850 m	**a**
285	A golfer hits a golf ball with an initial velocity of 40 m/s at an angle of 30^0 with horizontal. Determine the radius of curvature of trajectory described by the ball at start of the trajectory.	188 m	178 m	198 m	168 m	**a**
286	A golfer hits a golf ball with an initial velocity of 50 m/s at an angle of 30^0 with horizontal. Determine the radius of curvature of trajectory described by the ball at highest point of the trajectory.	336 m	326 m	316 m	306 m	**b**
287	A golfer hits a golf ball with an initial velocity of 60 m/s at an angle of 45^0 with horizontal. Determine the radius of curvature of trajectory described by the ball at start of the trajectory.	719 m	619 m	519 m	419 m	**c**
288	A golfer hits a golf ball with an initial velocity of 60 m/s at an angle of 45^0 with horizontal. Determine the radius of curvature of trajectory described by the ball at highest point of the trajectory.	719 m	619 m	183.48	419 m	**c**
289	A rotor 30mm in diameter is spinning at 300 rps. Find normal component of acceleration of a point on rim.	53295.8 m/s^2	19800 m/s^2	19700 m/s^2	19500 m/s^2	**a**

Sr. No.	Question	A	B	C	D	ans
290	A train enters a curved horizontal track at a speed of 90 kmph and slows down with constant deceleration to 72 kmph in 10 s. Calculate tangential component of acceleration.	(- 0.5) m/s^2	(+ 0.5) m/s^2	(- 0.833) m/s^2	(+ 0.833) m/s^2	**a**
291	A train enters a curved horizontal track at a speed of 72 kmph and accelerates uniformly to 90 kmph in 10 s. Calculate tangential component of acceleration.	(- 0.5) m/s^2	(+ 0.5) m/s^2	(- 0.833) m/s^2	(+ 0.833) m/s^2	**b**
292	A train enters a curved horizontal track at a speed of 72 kmph and accelerates uniformly to 108 kmph in 12 s. Calculate tangential component of acceleration.	(- 0.5) m/s^2	(+ 0.5) m/s^2	(- 0.833) m/s^2	(+ 0.833) m/s^2	**d**
293	In projectile motion, the radius of curvature at point of projection is	Zero	Minimum	Maximum	None of the above	**c**
294	In projectile motion, the radius of curvature at point of maximum height is	Zero	Minimum	Maximum	None of the above	**b**
295	In projectile motion, the radius of curvature at point of landing is	Zero	Minimum	Maximum	None of the above	**c**
296	In projectile motion, the radius of curvature from the point of landing to the point of maximum height is	Increases	Decreases	Constant	Constant	**b**
297	In projectile motion, the radius of curvature from the point maximum height to the landing is	Increases	Decreases	Constant	Constant	**a**
298	A truck is traveling along the horizontal circular curve of radius 60 m with constant speed v = 20 m/s, find the angular velocity.	3 rad/s	0.33 rad/s	1200 rad/s	none	**c**
299	A shell is fired from a gun barrel with a certain velocity will have maximum range if it fired with what angle with the horizontal plane.	0^0	30^0	45^0	90^0	**c**
300	A projectile is projected with a certain velocity at an angle θ with the horizontal plane. The horizontal distance traveled by the projectile is proportional to	sin θ	sin 3θ	sin 2θ	$\sin^2 \theta$	**c**
301	A projectile is projected with a certain velocity at an angle θ with the horizontal plane. The maximum height of a flight of the projectile is proportional to	sin θ	sin3 θ	$\sin^2 \theta$	sin2 θ	**c**
302	A shot is fired from a gun with muzzle velocity of 200 m/s and the angle of projection is 36^0, determine the greatest height achieved.	704.4 m	804.4 m	904.4 m	712 m	**a**
303	The maximum horizontal range a shell fires from a gun is observed to be 1 km. Determine the firing angle to be used to hit the target 0.75 km on the same level.	24.30	19.18	36	49	**a**
304	A shell is fired with a velocity of 200 m/s at an angle of 45^0 with horizontal. Find the total time of flight.	31.86 s	28.83 s	42 s	38.83 s	**b**
305	A man standing on an open truck moving at a constant speed throws a ball vertically upwards. The ball will fall	Behind the truck	Ahead of truck	Into his hands	On to the truck but not in his hands	**c**
306	A man standing at the rear end of an open truck moving with uniform acceleration throws a ball vertically upwards. The ball will fall	Behind the truck	Ahead of truck	Into his hands	On to the truck but not in his hands	**a**
307	A man standing at the rear end of an open truck moving with uniform retardation throws a ball vertically upwards. The ball will fall	Behind the truck	Ahead of truck	Into his hands	On to the truck but not in his hands	**b**
308	A missile is fired so as to reach maximum range (R) then maximum height reached by projectile is	R	0.5 R	0.75 R	0.25 R	**d**

Sr. No.	Question	A	B	C	D	ans
309	State which of following statements is correct, when a ball is at the highest point of projectile motion,	Its acceleration is zero	Its velocity is zero	Its velocity is directed downward	Its velocity is directed forward	**d**
310	A missile fired at an angle β to horizontal what should be the other angle of projection to hit the same target	2 β	90+ β	90- β	45+ β	**c**
311	Maximum range of projectile is obtained when angle of projection is ----- degree	90	0	45	30	**c**
312	When a particle is projected from the top of a building strikes the ground away from the building then its horizontal distance is	Same as range	Greater than range	Less than range	Zero	**a**
313	In projectile motion component of acceleration along horizontal direction is	Constant	Variable	Zero	None of these	**c**
314	Maximum height reached by a ball thrown with an initial velocity u at an angle β to the horizontal is	$(u^2\sin^2 \beta)/g$	$(u^2\sin 2 \beta)/g$	$(u^2\sin 2 \beta)/2g$	$(u^2\sin^2 \beta)/2g$	**d**
315	Horizontal range of a ball thrown with an initial velocity u at an angle β to the horizontal is	$(u^2\sin 2 \beta)/g$	$(u^2\sin^2 \beta)/g$	$(u^2\sin 2 \beta)/2g$	$(u^2\sin^2 \beta)/2g$	**a**
316	Three identical balls are thrown from the top of a building with the same initial speed. Initially ball 1 moves horizontally, ball 2 moves upward and ball 3 moves downward. Neglecting air resistance, which ball has the fastest speed when it hits the ground	Ball 1	Ball 2	Ball 3	All ball have same speed	**d**
317	A stone is just released from the window of a train moving along a horizontal straight track. The stone will move in	Straight downward	Straight horizontally	Hyperbolic path	Parabolic path	**d**
318	In a projectile motion which of following remains constant	Speed	x component of velocity	y component of velocity	None of above	**b**
319	At the highest point of projectile motion, velocity and acceleration are ---	Parallel to each other	Inclined	Perpendicular to each other	None of above	**c**
320	Angle of projection for which horizontal range and maximum height are equal is	45^0	$\tan^{-1}(4)$	$\tan^{-1}(1/4)$	$\tan^{-1}(2)$	**b**
321	A ball is projected with a velocity of 20 m/s at an angle θ to horizontal. In order to have the maximum range, its velocity at the highest point must be	10 m/s	14.14 m/s	28 m/s	Zero	**b**
322	Two bodies are thrown with the same initial velocity at an angle θ and (90- θ) respectively with the horizontal, then their ratios of maximum heights	01:01	sin θ: cos θ	sin 2θ : cos 2θ	cos θ : sin θ	**c**
323	A particle is projected horizontally at 36 m/s from a point 122.5 m above a horizontal surface , the time taken by the particle to reach the surface of ground is	2 s	5 s	3 s	4.3 s	**b**
324	A particle is projected horizontally at 36m/s from a point 122.5m above a horizontal surface , the horizontal distance traveled by particle when it reach the surface of ground	100 m	200 m	180 m	360 m	**c**
325	A particle is projected from an origin O with a velocity of (30i + 40j) m/s. the velocity of particle after 5 s is (take g = 10m/s)	30j + 40i	30i - 40j	30i -10j	10i + 30j	**c**
326	Maximum range of projectile projected on horizontal ground is given by	$u^2/2g$	$u^2\sin \alpha /2g$	u^2/g	$u^2\sin \alpha /g$	**a**
327	If a bullet is fired at an angle of 45^0 upwards with the horizontal, the horizontal range of bullet is equal to ---------- times the maximum height attained.	Two	Three	Four	Eight	**c**
328	If two projectiles are fired with equal velocities but one with 30^0 and other with 60^0 with horizontal, then both will have	Same time of flight	Equal horizontal range	Equal horizontal range and same maximum height	Same maximum height	**b**

Sr. No.	Question	A	B	C	D	ans
329	The horizontal range of projectile and maximum height reached by projectile is equal if angle of projection is				45^0	**a**
330	A projectile is projected with a velocity 10 m/s at an angle 30^0 with horizontal to attain maximum range, its velocity at the highest position must be	5 m/s	Zero	8.66 m/s	None of these	**c**
331	If the projectile is projected at an angle of ---------, then the maximum height reached and range of projectile are equal.	45^0	63.43^0	90^0	75.96^0	**d**
332	The range of projectile on a downward inclined plane is --------- the range on upward inclined plane for the same velocity of projection and angle of projection.	Less than	Equal to	More than	None of these	**c**
333	The horizontal range of a projectile is maximum when the angle of projection is	45^0	30^0	90^0	60 0	**a**
334	A missile fired at an angle α to the horizontal hits a target. What should be the other angle of projection to hit the same target, when initial velocity remains same?	2α	$90 + \alpha$	$90 - \alpha$	$45 + \alpha$	**c**
335	A missile is fired so as to reach maximum range then the maximum height reached is	Same as range	Three-forth of range	Half of range	One-forth of range	**d**
336	For a given velocity and horizontal range, the possible angle of projection are	1	2	3	4	**b**
337	A ball is thrown horizontally with a velocity of 100 m/s from top of the building 300 m high. The time taken by ball to reach ground is	7.8 s	8.7 s	3 s	9 s	**a**
338	Co-ordinate of the projection of a ball are (0, 0) and the maximum height is (5 m, 5 m) and the time to reach the maximum height is 5 s. Determine the initial velocity.	25.25 m/s	26.26 m/s	30.30 m/s	22.22 m/s	**a**
339	A ball is projected at such an angle that the horizontal range is 4 times the maximum height. Find the angle of projection.	0 degree	30 degree	45 degree	90 degree	**c**
340	A boy throws two stones in the sky one after another. He throws the first stone vertically upward which takes t s to come back to the ground. He throws the sond stone with the same velocity as that of earlier but the angle of projection of 60^0. The time taken by the sond stone to reach the ground shall be	Less than t	More than t	Same as t	None of the above	**b**
341	A ball thrown at 45^0 with horizontal so as to clear fence 3 m high above the ground and 20 m away from the point. If the point of throw is 1 m above the ground find the initial velocity of the throw.	15.76 m/s	16.76 m/s	14.76 m / s	None of these	**c**
342	If the initial velocity is increased the by 20% calculate the percentage increase in the maximum range of projectile.	10%	44%	50%	20%	**d**
343	A projectile is fired with a velocity 75 m/s at an angle of 60^0 to the horizontal. Determine the velocity of projectile after 0.5 s.	80.00 m/s	70.79 m /s	79.10 m/s	22.22 m/s	**b**
344	A ball is projected from an inclined plane at an angle of 30^0 with horizontal in the downward direction with a velocity of 10 m/s perpendicular to the plane. If the ball strikes the ground find the maximum range along the plane.	13.59 m	59.13 m	13.95 m	95.13 m	**a**
345	A rocket moves along a curved path with linear velocity of 600 m/s and it is observed that the rocket experiences an acceleration of 10 g in a direction normal to the path. Find the radius of curved path	6377 m	7746 m	3669.7 m	3333 m	**c**

Sr. No.	Question	A	B	C	D	ans
346	An inclined plane has a rise of 5 in 12. A shot is projected with a velocity 250 m/s at an elevation of 30^0. Find the range of the plane if the shot is fired up the plane.	6665 m	1555 m	1665 m	1228 m	**c**
347	An inclined plane has a rise of 5 in 12. A shot is projected with a velocity 250m/s at an elevation of 30^0. Find the range of the plane if the shot is fired down the plane.	10300 m	-10300 m	10800 m	– 10800 m	**b**
348	A stone is projected in a vertical plane from the ground with a velocity of 5 m/s at an elevation of 60^0. With what velocity must another stone be projected at an elevation of 450 m in order to have the same horizontal range?	4.55 m/s	3.65 m/s	4.65 m/s	6.65 m/s	**c**
349	A stone is projected in a vertical plane from the ground with a velocity of 5 m/s at an elevation of 60^0. With what velocity must another stone be projected at an elevation of 450 m in order to attend the same maximum height?	6.215 m/s	6.665 m/s	5.666 m/s	2.625 m/s	**a**
350	The velocity of particle in projectile motion at top of its path is equal to	Zero	Initial velocity of projection	Vertical component of initial velocity of projection	Horizontal component of initial velocity of projection.	**d**
351	For maximum horizontal range in a projectile motion the angle of projection is -- degree	90	60	45	30	**c**
352	In projectile motion, the equation of trajectory is	Linear	Parabolic	Cubic parabolic	None of these	**b**
353	In projectile motion, path followed by the particle is known as	Flight	Trajectory	a and b	None of these	**b**
354	In projectile motion, at the highest point the direction of velocity is	Upward	Downward	Tangential to path	Tangential to path	**c**
355	In projectile motion, the radius of curvature is maximum at the point of	Projection	Landing	Highest point	a and b	**d**
356	In projectile motion, the radius of curvature is minimum at the point of	Projection	Landing	Highest point	a and b	**c**
357	In projectile motion, the radius of curvature is increases from	Point of maximum height to point of landing	Point of maximum height to point of projection	Point of projection to point of maximum height	a and b	**d**
358	In projectile motion, the radius of curvature is decreases from	Point of maximum height to point of landing	Point of maximum height to point of projection	Point of projection to point of maximum height	a and b	**c**
359	In projectile motion acceleration along horizontal direction is	Constant	Uniform	Zero	None of these	**c**
360	In projectile motion velocity along horizontal direction is	Constant	Uniform	Zero	a and b	**d**
361	In projectile motion acceleration along vertical direction is	Constant	Uniform	Zero	a and b	**d**
362	Motion of projectile along verticle direction under	Uniform acceleration	Constant acceleration	Gravitional acceleration	Variable acceleration	**c**
363	A projectile is projected with an initial velocity of 40 m/s at an angle of 60 degree, the horizontal component of velocity is	20 m/s	34.64 m/s	25 m/s	None of these	**a**
364	A projectile is projected with an initial velocity of 40 m/s at an angle of 60 degree, the Vertical component of velocity is	20 m/s	34.64 m/s	15.02 m/s	None of these	**c**
365	A projectile is projected with an initial velocity of 40 m/s at an angle of 60 degree, determint required time totravel 40 m along x-direction	1 s	0.2 s	2 s	None of these	**c**

Sr. No.	Question	A	B	C	D	ans
366	A projectile is projected with an initial velocity of 40 m/s at an angle of 60 degree, determine the velocity at t = 2 s.	20 m/s	25 m/s	15 m/s	None of these	**b**
367	Determine the minimum possible velocity of projection for a maximum horizontal range of 12 km.	343.1 m/s	1223.24 m/s	117 km/s	None of these	**a**
368	Determine the angle of projection when the missile projected with velocity of projectin 343.1 m/s and cover horizontal range of 12 km.	30 degree	60 degree	45 degree	90 degree	**c**
369	In projectile motion the velocity is always ----- .	Vertical	Horizontal	Tangential to path of particle	Normal to path of particle	**c**
370	In projectile motion, the direction of acceleration along y-axis is	Upward	Downward	a and b	None of these	**b**
371	In projectile motion, the direction of acceleration along x-axis is	Leftward	Rightward	a and b	None of these	**d**
372	In projectile motion, the magnitude of acceleration along y-axis is	(-9.81) m/s^2	9.81 m/s^2	a and b	None of these	**a**
373	In projectile motion, the magnitude of acceleration along x-axis is	(-9.81) m/s^2	9.81 m/s^2	Zero	None of these	**c**