

## ECAT Pre General Science Physics Chapter 3 Motion and Force Online Test

Sr	Questions	Answers Choice
1	The path described by a projectile is called its	A. orbit B. trajectory C. range D. distance
2	The sum of the magnitude of two forces acting at a point is 18 and the magnitude of their resultant is 12. If the resultant is at $90^\circ$ with the force of the smaller magnitude, then their magnitudes are	A. 3, 15 B. 4, 14 C. 5, 13 D. 6, 12
3	Acceleration produced in a body by a force varies	A. inversely as the applied force B. directly as the applied force C. directly as the mass of the body D. none of them
4	A particle of mass 0.5 g moving along x-axis is located of $x_1 = 15$ m at $t_1 = 5$ s and $x_2 = 33$ m at $t_2 = 13$ s its average velocity is	A. $6 \text{ m s}^{-1}$ B. $2.45 \text{ m s}^{-1}$ C. $2.25 \text{ m s}^{-1}$ D. $4.45 \text{ m s}^{-1}$
5	A body whose momentum is constant must have constant	A. Acceleration B. Velocity C. Force D. None of these
6	Newton published laws of motion in his famous book "principia" in	A. 1867 B. 1667 C. 1676 D. 1687
7	Work done along a closed path in a gravitational force is:	A. maximum B. Minimum C. Zero D. Unity
8	Flight of rocket in the space is an example of	A. Newton's first law B. Newton's third law C. Newton's second law D. all of them
9	Earth is considered to be	A. a non-inertial frame B. an inertial frame C. an accelerated frame D. none of the above
10	If $m$ means mass of gases objected per second from a rocket and $v$ shows the change in velocity, than $mv$ is named as:	A. Force B. Energy C. work D. impulse
11	Dimensions of velocity are	A. [L] B. [T] C. $[LT^{-1}]$ D. $[LT^{-2}]$
12	Ethanol (alcohol) as a type of:	A. Electric fuel B. Bio fuel C. Nuclear fuel D. None of these
13	The horizontal component of a projectile moving with initial velocity of $500 \text{ ms}^{-1}$ at an angle $60^\circ$ to x-axis is	A. $500 \text{ ms}^{-1}$ B. $1000 \text{ ms}^{-1}$ C. $250 \text{ ms}^{-1}$ D. Zero
14	When two protons are brought closer potential energy of both of them:	A. Increases B. Decreases C. Remains same D. None of these
15	In the expression $F \times t$ , the force $F$ is	A. total force B. instantaneous force C. average force D. all of them

16	A 5 kg mass is falling freely, the force acting on, it will be	A. 19.6 N B. 9.8 N C. 5 N D. Zero
17	What must be changing when a body is accelerating uniformly?	A. the force acting on a body B. the velocity of the body C. the mass of the body D. the speed of the body
18	Which of the following statements for an object in equilibrium is not true?	A. The object must be at rest B. The object can be at rest C. The object is moving at constant speed D. The acceleration of the object is zero
19	One KWh is equal to:	A. $3.6 \times 10^{22}$ J B. 3.6 KJ C. $3.6 \times 10^{21}$ KJ D. 3.6 MJ
20	Bodies which falls freely under gravity provides good example of motion under:	A. Uniform acceleration B. Non-uniform acceleration C. Uniform velocity D. None of these
21	If m is the mass of the gases ejected per second with velocity v relative to the rocket of mass M, then the acceleration of rocket is	A. $a = M/mv$ B. $a = mM/v$ C. $a = mv/M$ D. $a = v/mm$
22	Body which falls freely under gravity provides good example of motion under:	A. Uniform acceleration B. Non-uniform acceleration C. Uniform velocity D. None of these
23	A body starting from rest covers a distance of 0.45 Km and acquires a velocity of 300 Kmhr <sup>-1</sup> . its acceleration will be	A. $7.71 \text{ m s}^{-2}$ B. $0.5 \text{ m s}^{-2}$ C. $0.15 \text{ m s}^{-2}$ D. $0.092 \text{ m s}^{-2}$
24	In velocity of a particle at an instant is 10 m/s and after 5s the velocity of the particle is 20 m/s. The velocity 3s before in m/s is	A. 8 B. 4 C. 6 D. 7
25	Velocity of a body changes if	A. direction of the body changes B. speed of the body changes C. neither speed nor direction changes D. either speed or direction changes
26	Essential characteristic of equilibrium is	A. Momentum equal to zero B. Acceleration equal to zero C. Kinetic energy equal to zero D. Velocity equal to zero
27	An aircraft is moving with a velocity of $300 \text{ ms}^{-1}$ . If all the forces acting on it are balanced, then	A. It still moves with the same velocity B. It will be just floating at the same point in space C. It will be fall down instantaneously D. It will lose its velocity gradually
28	Two bullets are fired simultaneously, horizontally and with different speeds from the same place. Which bullet will hit the ground first?	A. The faster one B. Depends on their mass C. The slower one D. Both will reach simultaneously
29	Which quantity has the same dimension as that of impulse?	A. KE B. Power C. Momentum D. Work
30	If speed of electron is $5 \times 10^5 \text{ m/s}$ . How long does it take one electron to transverse 1 m?	A. $1 \times 10^6$ B. $2 \times 10^6$ C. $2 \times 10^5$ D. $1 \times 10^5$
31	When a person jumps off the ground, the reaction force of the ground is	A. greater than the weight of the person B. smaller than the weight of the person C. equal to the weight of the person D. zero

32	The vertical and horizontal range will be equal id angle of projection is	<p>A. <math>45^\circ</math></p> <p>B. <math>45^\circ</math></p> <p>C. <math>60^\circ</math></p> <p>D. <math>120^\circ</math></p>
33	The collision in which KE is conserved but momentum is not conserved is called:	<p>A. Elastic collision</p> <p>B. Inelastic collision</p> <p>C. any these</p> <p>D. None of these</p>
34	Unit of impulse in	<p>A. Newton</p> <p>B. Kg m</p> <p>C. Kg m/s</p> <p>D. Joule</p>
35	A body is thrown from a height h with speed u, it hits the ground with speed V	<p>A. The value of V is maximum if the body is thrown vertically downward</p> <p>B. The value of V is maximum if the body is thrown vertically upwards</p> <p>C. The value of V is minimum if the body is thrown horizontally</p> <p>D. The value of V does not depend on the direction of which it is thrown</p>
36	For a moving body, at any instant of time	<p>A. If the body is not moving the acceleration is necessarily zero</p> <p>B. If the body is slowing, the retardation is negative</p> <p>C. If the body is slowing, the distance is negative</p> <p>D. If displacement, velocity and acceleration at that instant are known, we can find the displacement at any given time in future</p>
37	Acceleration of a body is negative if the velocity of the body is	<p>A. constant</p> <p>B. increasing</p> <p>C. decreasing</p> <p>D. none of them</p>
38	A cold soft drink is kept on the balance. When the cap is opened, then the weight	<p>A. Increases</p> <p>B. Decreases</p> <p>C. First increases, then decreases</p> <p>D. Remains same</p>
39	An object is dropped from a height of 100 m. Its velocity at the moment it touches the ground is:	<p>A. 100 m/sec</p> <p>B. 140 m/sec</p> <p>C. 1960 m/sec</p> <p>D. 196 m/sec</p>
40	A rocket carries its own fuel in the form of	<p>A. liquid only</p> <p>B. liquid or solid</p> <p>C. liquid and solid</p> <p>D. liquid or solid and oxygen</p>
41	If the velocity time graph is a straight line parallel to the time-axis, then it means:	<p>A. The body is moving with uniform velocity</p> <p>B. The body is moving with uniform acceleration</p> <p>C. The body is at rest</p> <p>D. None of these</p>
42	If the values of instantaneous and average velocities are equal, the body is said to be moving with	<p>A. uniform acceleration</p> <p>B. uniform speed</p> <p>C. variable velocity</p> <p>D. uniform velocity</p>
43	The velocity given to a body to go out of the influence of earth's gravity is known as:	<p>A. Terminal velocity</p> <p>B. Orbital velocity</p> <p>C. Escape velocity</p> <p>D. None of these</p>
44	The displacement coincides with the path of the motion when a body moves is a	<p>A. curved line</p> <p>B. straight line</p> <p>C. may be curved or straight</p> <p>D. none of them</p>
45	Maximum height of a bullet when fired at $30^\circ$ with horizontal is 11 m. Then height when it is fired at $60^\circ$ is	<p>A. 22 m</p> <p>B. 6 m</p> <p>C. 33 m</p> <p>D. 7.8 m</p>

46	The decrease in velocity per unit time is called:	A. Variable Acceleration B. Average Acceleration C. Retardation D. None of these
47	Acceleration produced in a body by the force varies	A. inversely as the applied force B. directly as the applied force C. directly as the mass of the body D. none of them
48	A body moving with uniform velocity has	A. positive acceleration B. negative acceleration C. infinite acceleration D. zero acceleration
49	A typical rocket consists of fuel	A. more than 60% of launch mass B. less than 60% of launch mass C. less than 80% of launch mass D. more than 80% of launch mass
50	A body falls freely from rest. It covers as much distance in the last second of its motion as covered in the first three seconds. The body has fallen for a time of	A. 3 s B. 5 s C. 7 s D. 9 s
51	A train of 150 m length is going towards north direction at a speed of $10 \text{ ms}^{-1}$ . A parrot flies at a speed of $5 \text{ ms}^{-1}$ towards south direction parallel to the railway track. The time taken by the parrot to cross the train is equal to	A. 12 s B. 8 s C. 15 s D. 10 s
52	The motion in a plane is the motion in	A. one dimension B. two dimension C. three dimension D. four dimension
53	A snooker ball moving with velocity $V$ collides head on with another snooker ball of same mass at rest. If the collision is elastic, the velocity of second snooker ball is	A. Zero B. Infinity C. $V$ D. $2V$
54	When a force is applied on a body, several effects are possible Which of the following effect could not occur?	A. the body rotates B. the body speeds up C. the mass of the body decreases D. the body changes its direction
55	Linear momentum is a	A. fixed quantity B. constant quantity C. scalar quantity D. vector quantity
56	If two bodies of equal masses moving in the same direction collide elastically, then their velocities.	A. Are added B. Are subtracted C. Do not change D. Are exchanged
57	During the upward motion of the projectile, the vertical component of velocity.	A. Decreases B. Increases C. Remains constant D. None of these
58	By which velocity a ball be projected vertically so that the distance covered by it in 5th seconds is twice the distance it covers in its 6th second ( $g=10\text{m/s}^2$ )	A. 58.8 m/s B. 49 m/s C. 65 m/s D. 19.6 m/s
59	Force is a:	A. Scalar quantity B. Base quantity C. Derived quantity D. None of these
60	An object is dropped from a height of 100 m. Its velocity at the moment it touches the ground is:	A. 100 m/sec B. 140 m/sec C. 1960 m/sec D. 196 m/sec
61	For a given angle of projection, if the time of flight of a projectile is doubled, the horizontal range will increase to	A. Four times B. Thrice C. Once D. Twice
62	When two protons are brought closer potential energy of both of them:	A. Increases B. Decreases C. Remains same D. None of these
63	The artillery shells travel along parabolic paths under the influence of	A. magnetic field B. electric field C. electromagnetic field D. gravitational field

64	If the slope of the velocity-time graph increases at constant rate with time, then the body is said to have	A. uniform deceleration B. uniform negative acceleration C. average acceleration D. uniform positive acceleration
65	If $d$ is the displacement of the body in time $t$ , then its average velocity will be	A. $V_{av} = \frac{d}{t}$ B. $V_{av} = \frac{t}{d}$ C. $V_{av} = \frac{d}{t}$ D. $V_{av} = \frac{d}{t}$
66	A body of mass 5 kg is acted upon by a total change in momentum will be:	A. 10 NS B. 100 NS C. 140 NS D. 200 NS
67	An object thrown in arbitrary direction in space with an initial velocity and moving freely under gravity will follow	A. a circular path B. a straight line C. a hyperbola D. a parabola
68	If the acceleration of a body is negative, then slope of the velocity-time graph will be:	A. Zero B. Positive C. Negative D. Infinity
69	Newton's laws are adequate for speeds that are	A. low compared with the speed of light B. equal to the speed of light C. greater than the speed of light D. all of them
70	The consumption source of energy is:	A. Energy from biomass B. Hydroelectric energy C. Geothermal energy D. None of these
71	Find the total displacement of a body in 8 seconds starting from rest with an acceleration of $20 \text{ cm/s}^2$	A. 0.064 m B. 640 cm C. 64 cm D. 64 m
72	A man sitting in a bus travelling in a direction from west to east with a speed of 40 km/h observes that the rain drops are falling vertically down. To the another man standing on ground the rain will appear	A. To fall vertically down B. To fall at an angle going from west to east C. To fall at an angle going from east to west D. The information given is insufficient to decide the direction of rain
73	When body moves with increasing acceleration, its velocity time graph is a	A. straight line B. horizontal straight line C. vertical straight line D. curve
74	When a horse pulls a cart, the force that makes the horse run forward is the force exerted by	A. The horse on the ground B. The horse on the cart C. The ground on the horse D. The ground on the cart
75	A non-inertial frame of reference is that frame of reference in which	A. $a = 0$ B. $a \neq 0$ or $a \neq 0$ C. $v = 0$ D. none of them
76	Which of the following is not a projectile	A. a bullet fired from a gun B. a space ship C. a football in air D. an artillery shell
77	For maximum linear distance of travel, a projectile must be fired at an angle of	A. $0^\circ$ B. $45^\circ$ C. $90^\circ$ D. $60^\circ$
78	When the total displacement is divided by total time taken, we get:	A. Velocity B. Average speed C. Average velocity

		D. None of these
79	A body of mass 1.0 kg is falling with an acceleration of $10 \text{ m/s}^2$ . Its apparent weight will be ( $g=10 \text{ m/s}^2$ )	A. 1.0 kg wt B. 2.0 kg wt C. 0.5 kg wt D. Zero
80	When a bicycle is in motion, the frictional forces exerted by the ground are	A. In the forward direction on both the wheels B. In the backward direction on both the wheels C. In the forward direction on the front wheel and the backward direction on the rear wheel D. In the backward direction on the front wheel and the forward direction on the rear wheel
81	The velocity given to a body to go out of the influence of earth's gravity is known as:	A. Terminal velocity B. Orbital velocity C. Escape velocity D. None of these
82	If the instantaneous velocity of a body does not change. the body is said to be moving with	A. average velocity B. uniform velocity C. instantaneous velocity D. variable velocity
83	What will be the ratio of the distance moved by a freely falling body from rest in 4th and 5th seconds of journey?	A. 4 : 5 B. 7 : 9 C. 16 : 25 D. 1 : 1
84	The product of force and time is called	A. acceleration B. linear momentum C. angular momentum D. impulse
85	The discuss used by athlete has a mass of 1 kg, its weight in newton is	A. 9.8 N B. 80 N C. 98 N D. 100 N
86	Ethanol (alcohol) is a type of:	A. Electric fuel B. Bio fuel C. Nuclear fuel D. None of these
87	The path (or trajectory) described by a projectile is	A. a parabola B. a hyperbola C. a circle D. a straight line
88	When a body is moving on a surface, the force of friction is called	A. Static friction B. Dynamic friction C. Limiting friction D. Rolling friction
89	The time of flight of a projectile motion equal to	A. half of the time to reach maximum height B. twice the time to reach maximum height C. one fourth of time to reach maximum height D. time to reach maximum height
90	A change in position of a body from its initial position to its final position is known as	A. relative motion B. displacement C. distance D. acceleration
91	Distance traveled by a body falling from rest in the first, second and third second is in the ration of	A. 1 : 2 : 3 B. 1 : 3 : 5 C. 1 : 4 : 9 D. None of the above
92	The product of force and time is called change in:	A. Momentum B. Impulse C. Force D. Both a and b
93	Tick the conservation force:	A. Tension in a string B. Air resistance string C. Elastic spring force D. Frictional force
94	If the velocity-time graph is a straight line parallel to time axis, then it means that:	A. The body is moving with uniform velocity B. The body is moving with uniform

94	If the velocity time graph is a straight line parallel to time-axis, then it means that:	<p>acceleration</p> <p>C. The body is at rest</p> <p>D. None of above</p>
95	The mass of a body measured by a physical balance in a lift at rest is found to be $m$ , if the lift is going up with an acceleration $a$ , its mass will be measured as	<p>A. <math>m(1 - a/g)</math></p> <p>B. <math>m(1 + a/g)</math></p> <p>C. <math>m</math></p> <p>D. Zero</p>
96	In an elevator moving vertically up with an acceleration ' $g$ ' the force exerted on the floor by a passenger of mass $M$ is	<p>A. <math>Mg</math></p> <p>B. <math>1/2 Mg</math></p> <p>C. Zero</p> <p>D. <math>2 Mg</math></p>
97	The vertical component of velocity of a projectile during its motion is minimum	<p>A. at the time of projection</p> <p>B. at the highest point</p> <p>C. just before hitting the plane of projection</p> <p>D. all of them</p>
98	The velocity of a body at any instant of its motion is known as	<p>A. average velocity</p> <p>B. instantaneous velocity</p> <p>C. uniform velocity</p> <p>D. none of them</p>
99	The direction of the linear momentum is the direction of	<p>A. speed</p> <p>B. velocity</p> <p>C. weight</p> <p>D. none of them</p>
100	The projectile motion is composed of	<p>A. horizontal motion only</p> <p>B. vertical motion only</p> <p>C. horizontal and vertical motion</p> <p>D. none of them</p>
101	A force of 50 dynes is acted on a body of mass 5 g which is at rest, for an interval of 3 seconds, then impulse is	<p>A. <math>0.15 \times 10^{-3} \text{Ns}</math></p> <p>B. <math>0.98 \times 10^{-3} \text{Ns}</math></p> <p>C. <math>1.5 \times 10^{-3} \text{Ns}</math></p> <p>D. <math>2.5 \times 10^{-3} \text{Ns}</math></p>
102	A ball is dropped from a height of 4.2 meters. To what height it will rise if there is no loss of KE after rebounding?	<p>A. 4.2 m</p> <p>B. 8.4</p> <p>C. 12.6</p> <p>D. None of these</p>
103	One newton is a force that produces an acceleration of $0.5 \text{ m/sec}^2$ in a body of mass:	<p>A. 2 Kg</p> <p>B. 3 Kg</p> <p>C. 4 Kg</p> <p>D. 8 Kg</p>
104	The shortest distance between two points directed from its initial point to final point is called:	<p>A. Velocity</p> <p>B. Displacement</p> <p>C. Speed</p> <p>D. Distance</p>
105	The direction of the acceleration is the same as that of	<p>A. speed</p> <p>B. velocity</p> <p>C. both of them</p> <p>D. none of them</p>
106	If the velocity of the body decreases non-uniformly then the slope of the velocity-time graph will have	<p>A. different values</p> <p>B. same values</p> <p>C. zero values</p> <p>D. constant values</p>
107	In the above figures, tell which set is graphs shows that a body is moving uniform velocity:	<p>A. (i) and (ii)</p> <p>B. (ii) and (iii)</p> <p>C. (i) and (iii)</p> <p>D. (ii) and (iv)</p>
108	Acceleration of a body is positive, if the velocity of the body is	<p>A. constant</p> <p>B. increasing</p> <p>C. decreasing</p> <p>D. none of them</p>
109	Tick the conservative force:	<p>A. tension in a string</p> <p>B. Air resistance</p> <p>C. Elastic spring force</p> <p>D. Frictional force</p>
110	One KWh is equal to:	<p>A. <math>3.6 \times 10^2 \text{J}</math></p> <p>B. 3.6 KJ</p> <p>C. <math>3.6 \times 10^1 \text{KJ}</math></p> <p>D. 3.6 MJ</p>
111	When we consider the average velocity of a body, then the body is moving in	<p>A. straight line</p> <p>B. curved path</p> <p>C. may be in a straight or curved path</p> <p>D. none of them</p>

112	A body of weight 1 N has a kinetic energy of 1 joule when its speed is:	A. $1.46 \text{ m sec}^{-1}$ B. $2.44 \text{ m sec}^{-1}$ C. $3.42 \text{ m sec}^{-1}$ D. $4.43 \text{ m sec}^{-1}$
113	A 120 m long train is moving in a direction with speed 20 m/s. A train B moving with 30 m/s in the opposite direction and 130 m long crosses the first train in a time	A. 6 s B. 36 s C. 38 s D. None of these
114	When a shell explodes in mid-air, the total momentum of its fragments is	A. less than the momentum of shell B. equal to the momentum of shell C. greater than the momentum of shell D. none of them
115	A ball is dropped vertically down and it takes time $t$ to reach the ground. At time $t/2$	A. The ball had covered exactly half the distance B. The velocity of the ball was $V/3$ where $V$ is the velocity when it reached the ground C. The ball had covered less than half the distance D. The ball had covered more than half the distance
116	Work done along a closed path in a gravitational field is:	A. Maximum B. Minimum C. Zero D. Unity
117	In equation $F=ma$ , then mass ' $m$ ' is	A. rest mass B. variable mass C. inertial mass D. gravitational mass
118	According to the law of conservation of linear momentum, the total linear momentum of an isolated system	A. increases B. decreases with time C. remains constant D. none of them
119	A body walks to his school at a distance of 6 km with a speed of 2.5 km/h and walks back with a constant speed of 5 km/h. His average speed for round trip expressed in km/h is	A. 24/13 B. 10/3 C. 3 D. 4,8
120	An airplane is flying horizontally with a velocity of 600 km/h and at a height of 1960 m. When it is vertically above a point A on the ground, a bomb is released from it. The bomb strikes the ground, at point B. The distance AB is	A. 1200 m B. 0.33 km C. 3.33 km D. 33 km
121	A typical rocket consumes about	A. $100 \text{ kg s}^{-1}$ of fuel B. $1000 \text{ kg s}^{-1}$ of fuel C. $10000 \text{ kg s}^{-1}$ of fuel D. $100000 \text{ kg s}^{-1}$ of fuel
122	A body is moving with constant velocity of 10 m/sec in the north-east direction. Then its acceleration will be:	A. $10 \text{ m/sec}^2$ B. $20 \text{ m/sec}^2$ C. $30 \text{ m/sec}^2$ D. Zero
123	When a shell explodes in mid-air, its fragments fly off in	A. only one direction B. in two direction C. different directions D. a particular direction
124	Two bodies of masses 1 kg and 5 kg are dropped gently from the top of a tower. At a point 20 cm from the ground both the bodies will have the same	A. Momentum B. Kinetic energy C. Velocity D. Total energy
125	When a bicycle is in motion but not pedaled, the force of friction exerted by the ground on the two wheels is such that it acts	A. In the backward direction on the front wheel and in the forward direction on the rear wheel B. In the forward directions on the front wheel and in the backward direction on the rear wheel C. In the forward direction on both the wheels D. In the backward direction on both the wheels
126	Change in momentum is one second called.	A. Impulse B. Force C. Energy D. Work
127	The motion of a body in a straight line is the motion in	A. one dimension B. two dimension



127	The motion of a body in a straight line is the motion in	C. three dimension D. four dimension
128	Acceleration of a body at any particular instant during its motion is known as	A. average acceleration B. uniform acceleration C. instantaneous acceleration D. all of them
129	Which one of the following is dimensionless:	A. Acceleration B. Velocity C. Density D. Angle
130	The magnitude of the displacement is a line from initial position to final position which is	A. straight B. curved C. either be curved or straight D. none of them
131	The range of projectile is 50 m when $\theta$ is inclined with horizontal at $15^\circ$ . What is the range when $\theta$ becomes $45^\circ$ ?	A. 400 m B. 300 m C. 200 m D. 100 m
132	If the water falls from a dam into a turbine wheel 19.6 m below, then the velocity of water at the turbine, is (Take $g=9.8 \text{ m/s}^2$ )	A. 9.8 m/s B. 19.6 m/s C. 39.2 m/s D. 98.0 m/s
133	Swimming becomes possible because of _____ law of motion:	A. First B. Second C. Third D. None of these
134	The quantity $F \times t$ is called as	A. momentum B. velocity C. acceleration D. impulse
135	Distance covered by a freely falling body in the first second of its motion will be:	A. 4.9 m B. 9.8 m C. 19.6 m D. 29.4 m
136	Laws of motion are not valid in a system which is	A. inertial B. non-inertial C. at rest D. moving with uniform velocity
137	The path followed by the projectile is known as:	A. Cycle B. Hyperbola C. Trajectory D. Route
138	Inertia mass and gravitational mass are	A. opposite B. identical C. identical when there is no friction D. all of them
139	An inertial frame of reference is that frame of reference in which	A. $\frac{a}{b} = 0$ B. $\frac{a}{b} > 0$ C. $\frac{a}{b} < 0$ D. all of them
140	A train is moving with a velocity of 25 m/s and a car is moving behind it by a velocity of 8 m/s in same direction. The relative velocity of train with respect to car is	A. 17 m/s B. 33 m/s C. 17.5 m/s D. none
141	A lift is descending at a constant speed V. A passenger in the lift drops a coin. The acceleration of the coin towards the floor will be	A. Zero B. g C. -g D. V + g
142	The magnitude of the force producing an acceleration of $10 \text{ m/sec}^2$ in a body of mass 500 grams is:	A. 3 N B. 4 N C. 5 N D. 6 N
143	One newton is a force that produces an acceleration of $0.5 \text{ m/sec}^2$ in a body of mass:	A. 2 kg B. 3 kg C. 4 kg D. 8 kg
144	When brakes are applied to a fast moving car, the passenger will be thrown:	A. Forward B. Backward C. Downward D. none of these

A.  $20 \text{ ms}^{-2}$

145	If a train traveling at 72 kmph is to be brought to rest in a distance of 200 meters then its retardation should be	B. $10 \text{ ms}^{-2}$ C. $2 \text{ ms}^{-2}$ D. $1 \text{ ms}^{-2}$
146	A body moving with an acceleration of $5 \text{ m/sec}^2$ started with velocity of $10 \text{ m/sec}$ . What will be the distance traversed in 10 seconds?	A. 150 m B. 250 m C. 350 m D. 400 m
147	At the top of the trajectory of a projectile the acceleration is	A. The maximum B. The minimum C. Zero D. g
148	The projectile attains maximum horizontal range when it is projected at an angle of	A. $30^\circ$ B. $45^\circ$ C. $60^\circ$ D. $75^\circ$
149	Which one of the following is dimensionless.	A. Acceleration B. Velocity C. Density D. Angle
150	Rate of change of momentum is called	A. Impulse B. Force C. Torque D. Momentum
151	The velocity of a projectile is maximum	A. at the point of projection B. just before striking the ground C. at none of them D. at both of them
152	Force is a:	A. Scalar quantity B. Base quantity C. Derived quantity D. None of these
153	Root out of the conventional source of energy:	A. Energy from biomass B. Hydroelectric energy C. Geothermal energy D. None of these
154	Angular momentum	A. Scalar B. Axial vector C. Polar vector D. At $45^\circ$ angle
155	The three equation of motions are useful only for	A. linear motion with increasing acceleration B. line motion with uniform acceleration C. linear motion with zero acceleration D. linear motion with varying acceleration
156	The magnitude of the force producing an acceleration of $10 \text{ m/sec}^2$ in a body of mass 500 grams is:	A. 3 N B. 4 N C. 5 N D. 6 N
157	Inertial frame of references are those frame of references which are moving with	A. increasing velocity B. decreasing velocity C. constant velocity D. all of them
158	During the projectile motion, the horizontal component of velocity	A. changes with time B. remains constant C. becomes zero D. decreases with time
159	Biomass includes:	A. Crop residue B. Natural vegetation C. Animal dung D. All of these
160	A stone is dropped from rest from the top of a tower 19.6 m high. The distance traveled	A. 9.8 m B. 14.7 m

160	during the last second of its fall is (giving $g=9.8 \text{ m/s}^2$ )	C. 4.9 m D. 19.6 m
161	A ball falls on the surface from 10 m height and rebounds to 2.5 m. if the duration of contact with the floor is 0.01 seconds then the average acceleration during contact is	A. $2100 \text{ m/s}^2$ B. $1400 \text{ m/s}^2$ C. $700 \text{ m/s}^2$ D. $400 \text{ m/s}^2$
162	The magnitude of the force producing an acceleration of $10 \text{ m/sec}^2$ in a body of mass 500 grams is:	A. 3 N B. 4 N C. 5 N D. 6 N
163	Which quantity has the same units as impulse	A. force B. work C. linear momentum D. acceleration
164	Acceleration in a body is always produced in the direction of :	A. Velocity B. Weight C. Force D. Both B and C
165	A body moving with an acceleration of $5 \text{ m/sec}^2$ started with velocity of $10 \text{ m/sec}$ . What will be the distance traversed in 10 seconds?	A. 150 m B. 250 m C. 350 m D. 400 m
166	In above figures, tell which set of graphs shows that a body is moving with uniform velocity:	A. (i) and (ii) B. (ii) and (iii) C. (iii) and (iv)
167	When the mass of the colliding body is much larger than the mass of the body at rest, its velocity after collision.	A. Becomes half B. Becomes zero C. Remains same D. Becomes double
168	The horizontal range of projectile, at a certain place, depends upon	A. the mass of the projectile B. velocity of projection C. angle of projection D. angle as well as velocity of projection
169	If the acceleration of a body is not uniform, then velocity-time graph will be:	A. Curve B. Straight line C. Sphere D. All of these
170	A motorist travels A to B at a speed of $40 \text{ km/h}$ and returns at speed of $60 \text{ km/h}$ . His average speed will be	A. $40 \text{ km/h}$ B. $48 \text{ km/h}$ C. $50 \text{ km/h}$ D. $60 \text{ km/h}$
171	The short distance between two points direction from its initial point to final point is called:	A. Velocity B. Displacement C. Speed D. Distance
172	An object thrown upward with an initial velocity at certain angle with the horizontal and moving freely under the action of gravity is called	A. a rocket B. an aeroplane C. a projectile D. a balloon
173	When the surfaces are coated with a lubricant, then they	A. Stick to each other B. Slide upon each other C. Roll upon each other D. None of these
174	A mass of $5 \text{ kg}$ moves with an acceleration of $10 \text{ m s}^{-2}$ force applied is	A. $10 \text{ N}$ B. $50 \text{ N}$ C. $2 \text{ N}$ D. $20 \text{ N}$
175	The instantaneous velocity is defined as the limiting value of $\Delta d/\Delta t$ on the time interval $\Delta t$ approaches to	A. zero B. maximum C. minimum D. infinity
176	Rocket engines lift a rocket from the earth surface, because hot gas with high velocity	A. Push against the air B. React against the rocket and push it up C. Heat up the air which lifts the rocket D. Push against the earth
177	During the upward motion of the projectile, the vertical component of velocity:	A. Decreases B. Increases C. Remains constant D. None of these

178	The dimension of linear inertia is:	<p>A. <math>\text{MLT}^{-2}</math></p> <p>B. <math>\text{ML}^{-1}\text{T}^{-2}</math></p> <p>C. <math>\text{ML}^{-1}\text{T}^{-2}</math></p> <p>D. <math>\text{MLT}^{-1}</math></p>
179	A projectile on its path gets divided into two pieces at its highest point. Which is true?	<p>A. Momentum increases</p> <p>B. Momentum decreases</p> <p>C. Kinetic energy increases</p> <p>D. Kinetic energy decreases</p>
180	If rope of lift breaks suddenly. The tension exerted by the surface of lift is ( $a$ =Acceleration of lift)	<p>A. <math>mg</math></p> <p>B. <math>m(g+a)</math></p> <p>C. <math>m(g-a)</math></p> <p>D. 0</p>
181	A ball of mass $m$ moving with uniform speed collides elastically with another stationary ball. The incident ball will lose maximum kinetic energy when mass of the stationary ball is	<p>A. <math>m</math></p> <p>B. <math>2m</math></p> <p>C. <math>4m</math></p> <p>D. Infinity</p>
182	A monkey sits on the pan of spring scale kept in an elevator. The reading of the spring scale will be maximum when	<p>A. Elevator is stationary</p> <p>B. Elevator cable breaks and it falls freely towards earth</p> <p>C. Elevator accelerates downwards</p> <p>D. Elevator accelerates upward</p>
183	When a body is moving with uniform positive acceleration, the velocity- time graph is a straight line. Its slope is	<p>A. zero</p> <p>B. negative</p> <p>C. positive</p> <p>D. non-existing</p>
184	Suppose the water flows out from a pipe at $3\text{ kg s}^{-1}$ and its velocity changes from $5\text{ m s}^{-1}$ to zero on striking the wall, then the force exerted by water on wall will be	<p>A. 5 N</p> <p>B. 10 N</p> <p>C. 15 N</p> <p>D. 20 N</p>
185	Newton's first law is also called:	<p>A. Law of torque</p> <p>B. Law of force</p> <p>C. Law of inertia</p> <p>D. None of these</p>
186	For a fixed force, larger is the mass of a body the	<p>A. greater is its acceleration</p> <p>B. smaller is its acceleration</p> <p>C. smaller is its weight</p> <p>D. zero is its acceleration</p>
187	A body of mass 5 kg is acted upon by a constant force of 20 n for 7 seconds. The total change in momentum will be:	<p>A. 10 NS</p> <p>B. 100 NS</p> <p>C. 140 NS</p> <p>D. 200 NS</p>
188	Swimming becomes possible because of _____ law of motion.	<p>A. First</p> <p>B. Second</p> <p>C. Third</p> <p>D. None of these</p>
189	The slopes of the tangent at any point on the curve gives the value of the	<p>A. average velocity at that point</p> <p>B. instantaneous velocity at that point</p> <p>C. average acceleration at that point</p>

		D. instantaneous acceleration at that point
190	A body is dropped from a tower with zero velocity, reaches ground in 4s. The height of the tower is about	A. 80 m B. 20 m C. 160 m D. 40 m
191	Which of the following four statements is false?	A. A body can have zero velocity and still be accelerated B. A body can have a constant velocity and still have a varying speed C. A body can have a constant speed and still have a varying velocity D. The direction of the velocity of a body can change when its acceleration is constant
192	The time rate of change of displacement is called:	A. Time B. Acceleration C. Speed D. Velocity
193	A vehicle of mass 120 kg is moving with a uniform velocity of 108 km/h. The force required to stop the vehicle in 10s is	A. $120 \times 10.8$ N B. 180 N C. 720 N D. 360 N
194	A boat of mass 40 kg is at rest, A dog of mass 4 kg moves in the boat with a velocity of 10 m/s. What is the velocity of boat?	A. 4 m/s B. 2 m/s C. 8 m/s D. 1 m/s
195	Velocity is a	A. scalar quantity B. vector quantity C. constant quantity D. none of them
196	A certain force gives an acceleration of $2 \text{ m/sec}^2$ to a body mass 5 kg. The same force would give a 20 kg object an acceleration of:	A. $0.5 \text{ m/sec}^2$ B. $5 \text{ m/sec}^2$ C. $1.5 \text{ m/sec}^2$ D. $9.8 \text{ m/sec}^2$
197	A man fires a bullet of mass 200 g at a speed of 5 m/s. The gun is of one kg mass. By what velocity the gun rebounds backwards?	A. 0.1 m/s B. 10 m/s C. 1 m/s D. 0.01 m/s
198	A body is moving with constant velocity of 10 m/sec in the north east direction. Then its acceleration will be:	A. $10 \text{ m/sec}^2$ B. $20 \text{ m/sec}^2$ C. $30 \text{ m/sec}^2$ D. Zero
199	The entity which measures the quantity of motion in a body is called	A. force B. energy C. momentum D. power
200	At the top of the trajectory of a projectile, the directions of its velocity and acceleration are	A. Perpendicular to each other B. Parallel to each other C. Inclined to each other at an angle of $45^\circ$ D. Antiparallel to each other
201	A ball is thrown upwards with a velocity of 100 m/s. It will reach the ground after	A. 10 s B. 20 s C. 5 s D. 40 s
202	Graphs which are used to illustrate the variation of velocity of an object with time are called	A. distance time graphs B. speed time graphs C. velocity time graphs D. acceleration time graphs
203	A train covers 90 km in half an hour. the time taken by it to travel 15 km will be:	A. 20 minutes B. 48 minutes C. 10 minutes D. 5 minutes
204	A dirty carpet is to be cleaned by heating. This is in accordance with _____ law of motion:	A. First B. Second C. Third D. None of these
205	If the objects of different masses move with the same velocity, then it is more difficult to stop the	A. lighter of the two B. massive of the two C. any one of them D. none of them

		D. both of them
206	Two projectiles are fired from the same point with the same speed at angles of projection $60^\circ$ and $30^\circ$ respectively. Which one of the following is true?	A. Their range will be same B. Their maximum height will be same C. Their landing velocity will be same D. Their time of flight will be same
207	Blomass includes:	A. Crop residue B. Natural vegetation C. Animal dung D. All of these
208	The mass of the object is a quantities measure of its	A. speed B. velocity C. acceleration D. inertia
209	The effect of applying a force on a moving body is to change	A. its direction of motion only B. its speed of motion only C. both the direction and speed of motion D. its inertia only
210	A ball is dropped from a certain height and another ball is projected horizontally from the same point. Which of the following statement is correct?	A. Both hit the ground at the same velocity B. Both hit the ground at the same speed C. The change of velocity during the path for both balls is the same D. The change of speed during the path for both balls is the same
211	The expression $F \times t$ is called impulse if the time 't' is	A. zero B. very large C. very small D. infinite
212	A car moves for half of its time at 80 km/h and rest half of time at 40 km/h, The total distance covered is 60 km. What is the average speed of the car?	A. 60 km/hr B. 80 km/hr C. 120 km/hr D. 180 km/hr
213	A person is sitting in a traveling train and facing the engine. He tosses up a coin and the coin falls behind him. It can be concluded that the train is	A. Moving forward and gaining speed B. Moving forward and losing speed C. Moving forward with uniform speed D. Moving backward with uniform speed
214	If a car rest acceleration uniformly to a speed of 144 km/h in 20 s it covers a distance of	A. 20 m B. 400 m C. 1440 m D. 2880 m
215	The linear momentum of the body is defined as	A. $p=ma$ B. $p=1/2ma$ C. $p=mv$ D. $p=1/2mv$
216	A ball is dropped downwards After 1 second another ball is dropped downwards from the same point. What is the distance between them after 3 seconds	A. 25 m B. 20 m C. 50 m D. 9.8 m
217	To get a resultant displacement of 10 m, two displacement vectors of magnitude 6 m and 8 m should be combined	A. Parallel B. Antiparallel C. At angle $60^\circ$ D. Perpendicular to each other
218	A body of weight 1 N has a kinetic energy of 1 joule when its speed is:	A. $1.46 \text{ m sec}^{-1}$ B. $2.44 \text{ m sec}^{-1}$ C. $3.42 \text{ m sec}^{-1}$ D. $4.43 \text{ m sec}^{-1}$
219	The dimension of linear inertia is:	A. $MLT^2$ B. $ML^0T^{-2}$ C. $ML^0T^0$ D. $MLT^{-1}$
220	A certain force gives an acceleration of $2 \text{ m/sec}^2$ to a body if mass 5 kg. The same force would give a 29 kg object an acceleration of:	A. $0.5 \text{ m/sec}^2$ B. $5 \text{ m/sec}^2$ C. $1.5 \text{ m/sec}^2$ D. $9.8 \text{ m/sec}^2$
221	The consumption of energy by a 1000 watt heter in half an hour is:	A. 5 Kwh B. 0.5 Kwh C. 2.5 Kwh D. 3.2 Kwh

222	A dirty carpet is to be cleaned by heating. This is in according with_____law of motion.	A. First B. Second C. Third D. None of these
223	The motion of a projectile is	A. one dimension B. two dimension C. three dimension D. all of them
224	Distance covered by a freely falling body in 2 sec will be	A. 4.9 m B. 19.6 m C. 29.2 m D. 44.1 m
225	Range of a projectile is R, when the angle of projection is $30^\circ$ . Then, the value of the other angle of projection for the same range, is	A. $45^\circ$ B. $60^\circ$ C. $50^\circ$ D. $40^\circ$
226	Bodies falling freely under gravity provide good example of motion under	A. non-uniform acceleration B. uniform acceleration C. variable acceleration D. increasing acceleration
227	The second law gives the relationship between	A. mass and velocity B. force and acceleration C. velocity and acceleration D. mass and weight
228	Slope of velocity-time graph represents:	A. Acceleration B. Speed C. Torque D. Work
229	If a ball comes back to its starting point after bouncing off the wall several times, then its	A. total displacement is zero B. average velocity is zero C. none of them D. both of them
230	If an iron ball and a wooden ball of the same radius was released from a height 'h' in vacuum, then time taken by both of them to reach ground will be	A. Unequal B. Exactly equal C. Roughly equal D. Zero
231	Swimming is based on the principle of	A. Newton's 1st law B. Newton's 2nd law C. Newton's 3rd law D. All
232	Root out the conventional source of energy:	A. Energy from biomass B. hydroelectric energy C. Geothermal energy D. None of these
233	A ball is dropped from a height of 4.2 meters. To what height will take it rise if there is no loss of KE after rebounding?	A. 4.2 m B. 8.4 m C. 12.6 m D. none of these
234	The area under line velocity-time graph is numerically equal to the	A. speed of the body B. acceleration of the body C. distance covered by the body D. none of them
235	The direction of velocity is along the direction of	A. distance B. displacement C. acceleration D. all of them
236	Change in momentum is one second is called:	A. Impulse B. Force C. Energy D. Work
237	A lift is moving up with acceleration equal to $1/5$ of that due to gravity. The apparent weight of a 60 kg man standing in lift is	A. 60 kg wt B. 72 kg wt C. 48 kg wt D. Zero

238	Slope of velocity time graph represents:	A. Acceleration B. Speed C. Torque D. Work
239	A railway engine (mass $10^4\text{kg}$ ) is moving with a speed of 73 km/h. The force which should be applied to bring it to rest over a distance of 20 m is	A. 3,600 N B. 7,200 N C. 10,000 N D. 100,000 N
240	The SI units of momentum is	A. $\text{kg m s}^{-2}$ B. $\text{kg ms}$ C. $\text{kg m s}^{-2}$ D. N-s
241	A car travels first half distance between two places with a speed of 30 km/h and remaining half with a speed of 50 km/h. The average speed of the car is	A. 37.5 km/h B. 10 km/h C. 42 km/h D. 40 km/h
242	The distance covered by a body in unit time is called.	A. Displacement B. speed C. Velocity D. Both B and C
243	The decrease in velocity per unit time is called	A. deceleration B. acceleration C. uniform acceleration D. variable acceleration
244	A typical rocket ejects the burnt gases at speeds over	A. $400 \text{ ms}^{-1}$ B. $40000 \text{ m s}^{-1}$ C. $40000 \text{ ms}^{-1}$ D. $60000 \text{ ms}^{-1}$
245	When brakes are applied to a fast moving car, the passengers will be thrown:	A. Forward B. Backward C. Downward D. None of these
246	Acceleration in a body is always produced in the directin of:	A. Velocity B. Weight C. Force D. Botha B and C