

DPP-1**NEWTON'S LAWS OF MOTION**

- Q.1 A boy sitting on the topmost berth in the compartment of a train which is just going to stop on a railway station, drops an apple aiming at the open hand of his brother sitting vertically below his hands at a distance of about 2 meter. The apple will fall
- (1) Precisely on the hand of his brother
 - (2) Slightly away from the hand of his brother in the direction of motion of the train
 - (3) Slightly away from the hand of his brother in the direction opposite to the direction of motion of the train
 - (4) None of the above
- Q.2 A body of mass 10 kg is sliding on a frictionless surface with a velocity of 2ms^{-1} . The force required to keep it moving with a same velocity is
- (1) 10 N
 - (2) 5 N
 - (3) 2.5 N
 - (4) Zero
- Q.3 A body of mass 2 kg is moving with a velocity 8 m/s on a smooth surface. If it is to be brought to rest in 4 seconds, then the force to be applied is
- (1) 8 N
 - (2) 4 N
 - (3) 2 N
 - (4) 1 N
- Q.4 A 30 gm bullet initially travelling at 120 m/s penetrates 12 cm into a wooden block. The average resistance exerted by the wooden block is
- (1) 2850N
 - (2) 2200 N
 - (3) 2000N
 - (4) 1800 N
- Q.5 A force of 100 dynes acts on mass of 5 gm for 10 sec. The velocity produced is
- (1) 2 cm/sec
 - (2) 20 cm/sec
 - (3) 200 cm/sec
 - (4) 2000 cm/sec
- Q.6 A force of 5 N acts on a body of weight 9.8 N. What is the acceleration produced in m/sec^2 .
- (1) 49.00
 - (2) 5.00
 - (3) 1.46
 - (4) 0.51
- Q.7 At a place where the acceleration due to gravity is 10 m sec^{-2} a force of 5 kg-wt acts on a body of mass 10 kg initially at rest. The velocity of the body after 4 second is
- (1) 5 m sec^{-1}
 - (2) 10 m sec^{-1}
 - (3) 20 m sec^{-1}
 - (4) 50 m sec^{-1}
- Q.8 A player caught a cricket ball of mass 150 gm moving at a rate of 20 m/s. If the catching process be completed in 0.1s, then the force of the blow exerted by the ball on the hands of the player is
- (1) 0.3 N
 - (2) 30 N
 - (3) 300 N
 - (4) 3000 N
- Q.9 Gravels are dropped on a conveyor belt at the rate of 0.5 kg/sec. The extra force required in newtons to keep the belt moving at 2 m/sec is
- (1) 1
 - (2) 2
 - (3) 4
 - (4) 0.5
- Q.10 Swimming is possible on account of
- (1) First law of motion
 - (2) Second law of motion
 - (3) Third law of motion

(4) Newton's law of gravitation

- Q.11 On stationary sail-boat, air is blown at the sails from a fan attached to the boat. The boat will
 (1) Remain stationary
 (2) Spin around
 (3) Move in a direction opposite to that in which air is blown
 (4) Move in the direction in which the air is blown
- Q.12 A book is lying on an inclined plane having inclination to the horizontal θ° . What is the angle between the weight of the book and the reaction of the plane on the book
 (1) 0° (2) θ° (3) $180^\circ - \theta^\circ$ (4) 180°
- Q.13 A cannon after firing recoils due to
 (1) Conservation of energy (2) Backward thrust of gases produced
 (3) Newton's third law of motion (4) Newton's first law of motion
- Q.14 Newton's third law of motion leads to the law of conservation of
 (1) Angular momentum (2) Energy (3) Mass (4) Momentum
- Q.15 When a horse pulls a wagon, the force that causes the horse to move forward is the force
 (1) He exerts on the wagon (2) The wagon exerts on him
 (3) He exerts on the ground (4) The ground exerts on him
- Q.16 The action and reaction forces referred to in Newton's third law of motion
 (1) Must act on the same body
 (2) Must act on different bodies
 (3) Need not be equal in magnitude but must have the same line of action
 (4) Must be equal in magnitude but need not have the same line of action
- Q.17 A body, whose momentum is constant, must have constant
 (1) Force (2) Velocity (3) Acceleration (4) All of these
- Q.18 Mass of a person sitting in a lift is 50 kg. If lift is coming down with a constant acceleration of 10 m/sec^2 . Then the reading of spring balance will be ($g = 10 \text{ m/sec}^2$)
 (1) 0 (2) 1000N (3) 100 N (4) 10 N
- Q.19 A boy whose mass is 50 kg stands on a spring balance inside a lift. The lift starts to ascend with an acceleration of 2 ms^{-2} . The reading of the machine or balance ($g = 10 \text{ ms}^{-2}$) is
 (1) 50kg (2) Zero (3) 49 kg (4) 60 kg
- Q.20 If rope of lift breaks suddenly, the tension exerted by the surface of lift ($a =$ acceleration of lift)
 (1) mg (2) $m(g + a)$ (3) $m(g - a)$ (4) 0

ANSWER KEY

Q.1	2	Q.2	4	Q.3	2	Q.4	4	Q.5	3
Q.6	2	Q.7	3	Q.8	2	Q.9	1	Q.10	3
Q.11	1	Q.12	3	Q.13	3	Q.14	4	Q.15	4
Q.16	2	Q.17	2	Q.18	1	Q.19	4	Q.20	4