

Laws of Motion**DPP - 1**

1. When an object undergoes acceleration
 - (A) Its speed always increases
 - (B) Its velocity always increases
 - (C) It always falls towards the earth
 - (D) A force always acts on it
2. Balanced forces may _____ a body:
 - (A) Move
 - (B) Accelerate
 - (C) Retard
 - (D) Deform
3. An unbalanced force acts on a body. The body:
 - (A) Must remain in same state
 - (B) Must move with uniform velocity
 - (C) Must be accelerated
 - (D) Must move along a circle.
4. A number of forces acting on a body do not cause any change in its state of rest or of uniform motion, the forces are
 - (A) Parallel
 - (B) Unbalanced
 - (C) Balanced
 - (D) Inclined
5. Example of force is :
 - (A) Friction
 - (B) Contact force
 - (C) Weight
 - (D) All of them
6. If no force acts on a body, it will
 - (A) gets deformed
 - (B) Move with increasing speed
 - (C) Either remain at rest or move with same speed along a straight line
 - (D) Break
7. If a body is not accelerated :
 - (A) Unbalanced force acts on it
 - (B) Forces acting are not balanced
 - (C) The resultant force is zero
 - (D) A single force acts on it
8. For moving a body from rest or stopping a moving body, we need
 - (A) Force
 - (B) Mass
 - (C) Direction
 - (D) Time
9. Friction is a/an :
 - (A) self-adjusting force
 - (B) necessary evil
 - (C) important force in daily life
 - (D) all of these
10. Which of the following is responsible for the flow of water in rivers?
 - (A) Magnetic force
 - (B) Electrostatic force
 - (C) Force of friction
 - (D) Gravitational force
11. Give any two examples of contact and noncontact forces.
12. How much force is required to keep a body moving with constant speed on a frictionless surface?
13. Does the force always produce acceleration?
14. Name the property of the bodies due to which they resist change in their velocity.
15. With which law of motion, the name of Galileo is associated?

Laws of Motion**DPP - 2**

1. Mass measures amount of _____ in a body :
(A) inertia (C) velocity
(B) motion (D) acceleration
2. Momentum measures amount of _____ in a body :
(A) Inertia (C) Velocity
(B) Motion (D) Acceleration
3. When a net force acts on an object, the object will be accelerated in the direction of the force with an acceleration proportional to :
(A) the force on the object (C) the mass of the object
(B) the velocity of the object (D) the inertia of the object
4. A body of mass 20 kg moves with an acceleration of 2ms^{-2} . The rate of change of momentum in SI unit is:
(A) 40 (B) 10 (C) 4 (D) 1
5. Definition of force can be deduced from:
(A) newton's first law (C) newton's third law
(B) newton's second law (D) any one of the above
6. A body of mass m strikes against wall with a speed v and rebounds with the same speed along opposite direction. The change in magnitude of momentum is :
(A) Zero (C) $-mv$
(B) mv (D) $2mv$
7. Force measures the rate of change of _____ of a body:
(A) Mass (C) Velocity
(B) Inertia (D) Momentum
8. When a bus suddenly starts, the standing passengers lean backwards in the bus. This is an example of:
(A) Newton's first law (C) Newton's third law
(B) Newton's second law (D) None of these
9. A man sitting in a train in motion is facing the engine. He tosses a coin up, the coin falls behind him. The train is moving :
(A) forward with uniform speed (C) forward with acceleration
(B) backward with uniform speed (D) forward with retardation
10. Inertia depends upon:
(A) Acceleration of the body (C) Shape of the body
(B) Velocity of the body (D) Mass of the body
11. Name two quantities on which the momentum of a body depends.
12. What is the name given to the product of mass and velocity?
13. What is the SI unit of momentum?
14. Is momentum a vector or scalar quantity?
15. What is the acceleration produced by a force of 12 N exerted on an object of mass 3 kg?

Laws of Motion**DPP - 3**

- The momentum of a body of given mass is proportional to its:
(A) volume (C) velocity
(B) shape (D) colour
- If the momentum of a body is halved then the velocity will be:
(A) Doubled (C) Three times
(B) Four times (D) Will become half
- If the momentum of a body is doubled, then the kinetic energy will be:
(A) halved (C) doubled
(B) unchanged (D) 4 times
- When a bullet is fired from a gun. The gun recoils to:
(A) Conserve mass (C) Conserve kinetic energy
(B) Conserve momentum (D) All of these
- A bullet in motion hits and gets embedded in a solid resting on a frictionless table. What is conserved
(A) Momentum and K.E. (C) K.E. alone
(B) Momentum alone (D) None of these
- Kg m/s is the unit of:
(A) Force (C) Kinetic energy
(B) Momentum (D) None of these
- For a jet plane flying with a very high speed, the forward motion of the plane could be accounted on the law of conservation of:
(A) Force (C) Acceleration
(B) Velocity (D) Momentum
- Unit of impulse is:
(A) kg m/s^2 (C) m/s
(B) kg m/s (D) m/s^2
- A body of mass 20 kg is moving with a velocity of 4 m/s, what is the momentum with it?
(A) 100 kg m/s (C) 40 kg m/s
(B) 80 kg m/s (D) 20 kg m/s
- The change in momentum of a body is 50 kg m/s in time 4 s. What is the force acting on it ?
(A) 25 N (C) 22.5 N
(B) 50 N (D) 12.5 N
- What is momentum? What is its unit in S.I. and CGS system of units?
- How is impulse related to momentum?
- A body of mass 40 kg is accelerating at a rate of 9 m/s^2 . What is the rate of change of linear momentum?
- The speed of a car (mass 2000 kg) increases from 54 km/hr to 72 km/hr. What is the change in momentum?
- For how much time should a force of 500 N act on a body of mass 10 kg so that it acquires a velocity of 50 m/s?

Laws of Motion

DPP - 4

- Choose wrong relation:

(A) $I = F \times t$	(C) $I = p_2 - p_1$
(B) $F \times t = p_2 - p_1$	(D) $I = F/t$
- China and glass wares are packed with soft material when transported. This is done to:

(A) Increase impulse	(C) For cost cutting
(B) Reduce Impulsive force	(D) None of these
- A cannon after firing recoils due to :

(A) Conservation of energy	(C) Newton's first law of motion
(B) Newton's third law of motion	(D) None of these
- Spring in vehicles are introduced to :

(A) Reduce	(C) Reduce force
(B) Reduce impulse	(D) Reduce velocity
- A man could swim in river because of :

(A) Newton's first law	(B) Newton's second law of motion
(C) Newton's third law of motion	(D) None of the above
- A man walks on a rough surface in left direction. What is the direction of friction force acting on him?

(A) In left direction	(C) In arbitrary direction
(B) In right direction	(D) None of these
- The vector sum of action and reaction:

(A) Is equal to zero	(C) May or may not be equal to zero
(B) Is not equal to zero	(D) None of these
- State whether the following pair of force could be on action-reaction pair or not?

(A) Not an action-reaction pair	(C) Depends on situation
(B) Is an action-reaction pair	(D) None of these
- A book of weight 10 N is placed on a table. The force exerted by the surface of the table on the book will be:

(A) Zero	(C) 20 N
(B) 10 N	(D) None of these
- If A and B are two objects with masses 10 kg and 30 kg respectively then :

(A) A has more inertia than B	(C) A and B have the same inertia
(B) B has more inertia than A	(D) None of the two have inertia
- Action and reaction are equal and opposite and act on different bodies. Explain.
- When we jump on a heap of sand we didn't get hurt but we get hurt when the floor is of concrete. Explain.
- Wicket-keeper in a cricket match lowers his hand while catching a ball. Explain.
- Give three practical examples of action and reaction. Explain each one of them.
- Force of gravity attracts a body of mass m with a force $W = mg$. What is the force with which this object attracts earth towards it. What is the direction of this force?