# CLASS IX PHYSICS

1. A goalkeeper in a game of football pulls his hands backwards after holding the ball shot at the goal. This enables the goalkeeper to:
(a) Exert large force on the ball

(b) Increases the force exerted by the ball on hands

(c) Increase the rate of change of momentum

(d) Decrease the rate of change of momentum

2. An object of mass 2 kg is sliding with a constant velocity of 4 m/s on a friction less horizontal table. The force required to keep the object moving with the same velocity is:

(a) 32 N

(b) 0 N

(c) 2 N

(d) 8 N

3. Newton's third law of motion explains the two forces namely 'action' and 'reaction' coming into action when the two bodies are in contact with each other. These two forces:
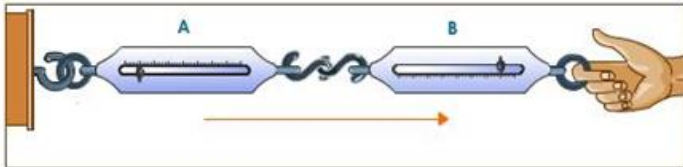
(a) Always act on the same body

(b) Always act on the different bodies in opposite directions

(c) Have same magnitude and direction

(d) Acts on either body at normal to each other

4. In a rocket, a large volume of gases produced by the combustion of fuel is allowed to escape through its tail nozzle in the downward direction with the tremendous speed and makes the rocket to move upward.

Which principle is followed in this take off of the rocket?

   (a) Moment of inertia

(b) Conservation of momentum

(c) Newton's third law of motion

(d) Newton's law of gravitation

5 A water tank filled up to 2/3 of its height is moving with a uniform speed. On sudden application of the brake, the water in the tank would

(a) Move backward

(b) Move forward

(c) Come to the rest

(e) Be unaffected

6. The seat belts are provided in the cars so that if the car stops suddenly due to an emergency braking, the persons sitting on the front seats are not thrown forward violently and saved from getting injured. Can you guess the law due to which a person falls in forward direction on the sudden stopping of the car?

(a) Newton's first law of motion

(b) Newton's second law of motion

(c) Newton's third law of motion

(d) Newton's law of gravitation

7. Which of the following situations involves the Newton's second law of motion?

(a) A force can stop a lighter vehicle as well as a heavier vehicle which are moving

(b) A force exerted by a lighter vehicle on collision with a heavier vehicle results in both the (vehicles coming to a standstill

(c) A force can accelerate a lighter vehicle more easily than a heavier vehicle which are moving

(d) A force exerted by the escaping air from a balloon in the downward direction makes the balloon to go upwards

8. The speed of a car weighing 1500 kg increases from 36 km/h to 72 km/h uniformly. What will be the change in momentum of the car?

(a) 15000 kg km/h

(b) 15000 kg m/s

(c) 54000 kg m/s

(d) 54000 g m/s

9. A passenger in a moving train tosses a coin which falls behind him. Observing this statement what can you say about the motion of the train?

(a) Accelerated

(b) Retarded

(c) Along circular tracks

(d) Uniform

10. A man wearing a bullet-proof vest stands on roller skates. The total mass is 80 kg. A bullet of mass 20 g is fired at 400 m/s. It is stopped by the vest and falls to the ground. What is then the velocity of the man?

(a) 1 m/s

(b) 0.1 m/s

(c) 0.01 m/s

(d) 0 m/s

11. The inertia of a moving object depends on:

i. Mass of the object

ii. Momentum of the object

iii. Speed of the object

iv. Shape of the object

Choose the correct option:

(a) (i) and (ii)

(b) only (i)

(c) only (ii)

(d) (iii) and (iv)

12. Linear momentum of an object is 250 g cm/s. If the velocity of the object is 5 m/s, then the mass of the object is _____.

(a) 5 Kg
(b) 0.5 g
(c) 5 mg
(d) 0.5 mg

13. A body of mass 3 kg moves with a velocity of 500 cm/s, the momentum of the body is _____.

(a) 150 kg m/s
(b) 15×10^9 kg m/s
(c) 15×10 kg m/s
(d) 15 kg m/s

14. Which of the following statements is not correct for an object moving along a straight path in an accelerated motion?
(a) Its speed keeps changing
(b) Its velocity always changes
(c) It always goes away from the Earth
(d) A force is always acting on it

15. The masses of two bodies are in ratio 5: 6 and their velocities are in ratio 1: 2. Then their linear momentum will be in the ratio
(a) 5: 6
(b) 1: 2
(c) 12 : 5
(d) 5 : 12

16. In SI system, the gravitational unit of force is _____.

(a) kg m s-2
(b) kgf
(c) m/s
(d) metre

17. Identify the force which cannot act without any physical contact.

(a) frictional force
(b) gravitational force
(c) electrostatic force
(d) magnetic force

18. Which of the following objects has greater inertia? (consider that all these objects are of the same size)

(a) a thermocol ball
(b) a plastic ball
(c) a paper ball

(d) a solid iron ball

19. A force of 50N moves a body,

     I. Friction force exerted on the body is less than 50N
    II. Friction force exerted on the body is more than 50N
    III. None of these
    IV. Both of I and II

20. A coin placed on a card (rested at the edges of the glass) remains at rest because of

     I. Inertia of rest
    II. Two forces act on the coin which balance each other
    III. No unbalanced force acts on it
    IV. All of these

21. If two balls of same masses are dropped on sand, the depths of penetration is same if

     I. Heavier ball is dropped faster than lighter ball
    II. Lighter ball is dropped faster than heavier ball
    III. The product 'mv' is same for both bodies
    IV. None of these

22. A football and a stone has same mass

     I. Both have same inertia
    II. Both have same momentum
    III. Both have different inertia
    IV. Both have different momentum

23. A throws a ball weighing 200g vertically upwards with a speed of 10m/s. Its momentum at the highest point of its flight will be
(a) 2 kgm/s
(b) 2000 kgm/s
(c) insufficient data to find the momentum
(d) zero

24. Two equal masses m each moving in the opposite direction with the same speed v collide and stick to each other. The velocity of the combined mass is
 (a) v
(b) 2v
(c) v/2
(d) zero

25. The unit of measuring the momentum of a moving body is:

(a) m/s

(b) kg.m/s

(c) kg.m/s^2
(d) N m^2/kg^2