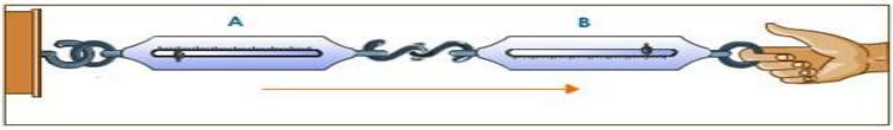
Force

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 upto 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. Newton's first law of motion says that a moving body should continue to move forever , unless some external forces act on it. But a moving cycle comes to rest after some time if we stop pedaling it. Can you choose the correct reason for the stoppage of cycle?
i. Air resistance
ii. Gravitational pull of the earth
iii. Friction of the road
iii. Heat of the environment
Choose the correct option:
(a) (iii) and (iv)
(b) (i) and (iii)
(c) (i) and (ii)
(d) (ii) and (iii)

9. The unit of measuring the momentum of a moving body is:
(a) m/s
(b) kg.m/s
(c) $kg.m/s^2$
(d) $N\ m^2/kg^2$

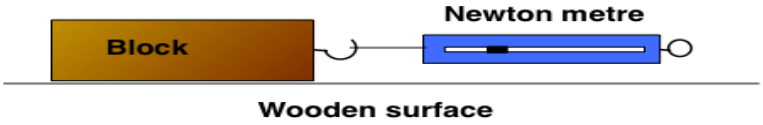
10. The inertia of a moving object depends on:

i. Mass of the object
ii. Momentum of the object
iii. Speed of the object
iv. Shape of the object

11. A body is moving along a straight path. What will happen to the body in the absence of an external field?
a) It will stop
b) It will move with the same speed in a different path
c) It will move with the same speed along the same straight path
d) It will move with a reduced speed along the same path

12. Which one of the following is a disadvantage of friction?
    A. It stops a car from sliding off the road.
    B. It keeps a runner from slipping.
    C. It helps a person to write clearly.
    D. It wears away the surfaces in contact.

13. A student investigating the effect of friction pulled a wooden block over four different types of surface. These surfaces are listed below.
Which one of these surfaces would require the least force to make the block move?



    a. Untreated wooden surface
    b. Surface covered with smooth sand paper
    c. Oiled surface
    d. Surface covered with rough sand paper

14. We meet many different types of force every day. Some of these are shown in the list below. However, one of these is NOT a force. Which one is it?
    a. Push
    b. Friction
    c. Pull
    d. Speed

15. A light bulb is attached to the ceiling by a cord. What type of force is there in the cord?
    a. Magnetic
    b. Push
    c. Tension
    d. Friction

Answers key

1. d 2. b 3. b 4. b 5. b 6. a 7. c 8. b 9. b 10. a

11. c 12. d 13. c 14. d 15. c