Brain International School

Vikas Puri, New Delhi

ASSIGNMENT NO. 3

SUBJECT: SCIENCE CLASS-IX JULY'2025

Chapter-8 Force and Laws of motion

1. **Choose the correct option:**

i. A car of 700 kg is moving with constant velocity of 50 m/s for 5s. Force acting on the car in this period is:

a) 70 N b) 7000 N c) 500 N d) zero

ii. In force acting on a mass of 10 kg produces an acceleration equal to

a) 1 m/s^2 b) 0.1 m/s^2 c) 10 m/s^2 d) 0.01 m/s^2

2. **In each of the following questions, two statements are given one labelled. Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions the codes (a), (b), (c) and (d) as given below:**

a) Both A and R are true, and R is correct explanation of the assertion.

b) Both A and R are true, but R is not the correct explanation of the assertion

c) A is true, but R is false

d) A is false, but R is true.

(i) Assertion: A body continues to be in the state of rest or of uniform motion unless acted upon by an external force.

Reason: The inertia of a body tends to oppose the change in its state of motion.

(ii) Assertion: A moving object stops after some time if no force is applied.

Reason: Frictional force opposes the motion of objects.

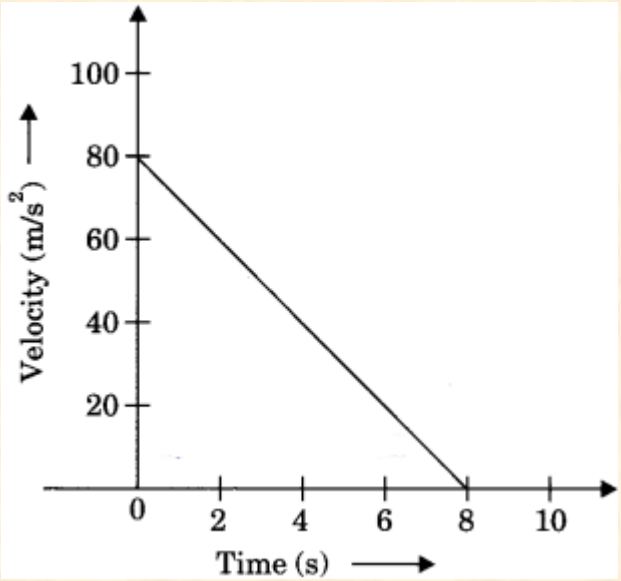
3. Answer the following question.

1. State Newton's third law of motion. Illustrate it with one example.
2. Why does a karate expert suddenly reduce the speed of his hand while striking a slab of ice? Explain with reference to Newton's law of motion
3. A bullet of 10 g strikes a wooden block at a speed of 10^3 m/s and gets embedded after travelling 5 cm. Calculate the resistive force exerted by block on the bullet.

4. Using second law of motion, derive the relation between force and acceleration.
5. A child sets a 5-rupee coin on a stiff card covering an empty glass tumbler. He gives the card a sharp horizontal flick with his finger. The card shoots away.
   a) What happens to the coin and why?
   b) State the law which helps to understand this observation.

4. Answer the following case study-based questions

The velocity-time graph of an object of mass m = 100 g is shown in figure. Observe the graph carefully and answer the following questions.



(i) Calculate the acceleration of the ball.

(ii) Calculate the frictional force of the floor on the ball.

(iii) Explain different kind of inertia with examples.