Brain International School
Vikas Puri, New Delhi

ASSIGNMENT NO. 2

SUBJECT: PHYSICS **CLASS-IX** **JULY'2026**

CH 6: HOW FORCES AFFECT MOTION

Q1. **Choose the correct option:**

i. When two forces of 10 N and 6 N act in opposite directions on an object, what is the net force if 10 N acts towards the right and 6 N towards the left?
(a) 16 N towards the right
(b)16 N towards the left
(c) 4 N towards the right
(d) 4 N towards the left

ii. According to Newton's first law of motion, what happens to an object moving with constant velocity when the net force acting on it is zero?
(a) It immediately stops moving
(b) It continues to move with the same constant velocity
(c) It accelerates in the direction of motion
(d) It changes direction randomly

Q2. In each of the following questions, two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Select the correct answer to these questions from 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) Both assertion and reason are false.

(a) **Assertion**: If the spring is stretched from one side, the size and shape of the spring changes.
Reason: Unbalanced force acting on the spring changes the shape and size of the spring in the direction of application.

(b) **Assertion**: Sudden application of brakes in a moving car may cause injury.
Reason: Inertia is a tendency of an object to keep moving or being at rest undisturbed.

Q3. Why does a coconut break when it hits the ground but a cricket ball caught by pulling hands back does not injure the player?

Q4. A student pushes a stationary block of mass 25 kg on a horizontal floor. The maximum force of friction is 50 N. Calculate the displacement of the block in 2 seconds if the student applies (i) 50 N and (ii) 55 N force in the forward direction.

Q5. What is inertia? Who introduced this concept? Explain how Newton's first law of motion is also called the law of inertia.

Q6. What is the force of friction? In which direction does it act on a moving object? How does the nature of the surface affect the force of friction?

Q7. A sports car of mass 1500 kg is moving towards the east. Its velocity-time graph shows: velocity increases uniformly from 0 $m\ s^{-1}$ to 10 $m\ s^{-1}$ in the first 5 s, remains constant at 10 $m\ s^{-1}$ from 5 s to 10 s, and then decreases uniformly to 0 $m\ s^{-1}$ from 10 s to 15 s. Calculate the force acting on the car during each time interval.