Class IX

ASSIGNMENT 9 JULY – FORCE AND LAWS OF MOTION

1. Give an example in each case where:
   (a) Force causes a motion in stationary object.
   (b) Force stops a moving body.
   (c) Force changes the direction of a moving body.
   (d) Force changes the speed of a moving body.
   (e) Force changes the shape of a moving body.
2. Distinguish between balanced and unbalanced forces.
3. Give two examples to show that greater the mass, greater is inertia of a body.
4. Give reasons:
   (a) A passenger in a bus tends to fall backward when it starts suddenly.
   (b) A bullet fired against a glass window pane makes a hole in it without cracking it.
   (c) An athlete runs a certain distance before taking a long jump.
5. What is the relationship between: (a) acceleration and mass of a body (b) force and acceleration.
6. Give reasons:
   (a) A karate player can break a pile of tiles in a single blow.
   (b) A car driver prefers to hit something soft (say hay stock) than a wall if his car goes out of control while driving.
   (c) Shockers are provided in vehicles.
7. Two bodies A & B of the same mass are moving with velocities v and 3v respectively. Compare their (a) inertia
   (b) Momentum (c) the force needed to stop them in the same time.
8. Explain with reasons:
   a. When a shot is fired from a gun the gun recoils.
   b. A jet aeroplane releases a lot of hot gases before taking off.
   c. We press the ground while walking forward.
   d. A rubber ball rebounds when struck against a hard floor.
9. Why do we get hurt by falling on a concrete structure than on a sand track?
10. You are hurt when you kick a stone. Why?
11. Explain why a bicycle stops if we stop pedalling.
12. If we take out a piece of paper from under a book with a jerk, the book will not move. Explain.
13. A force acts on a body of mass m1 and produce an acceleration a1. The same force when acting on a mass m2 produces acceleration a2. Define the relation between m1, m2, a1, a2.
14. Could a body of mass ma have a weight equal to zero?
15. If Newton's 3rd law of motion is written in the form F21 = F12; what is the mistake?