



**Class: XI A**

**Name:**

**Subject: PHYSICS**

**Topic: Laws of motion**

**Date:**

1. Why is it desired to hold a gun tight to one's shoulder when it is being fired?
2. Why does a swimmer push the water backwards?
3. Friction is a self adjusting force. Justify.
4. A force is being applied on a body but it causes no acceleration. What possibilities may be considered to explain the observation?
5. Force of 16N and 12N are acting on a mass of 200kg in mutually perpendicular directions. Find the magnitude of the acceleration produced?
6. An elevator weighs 3000kg. What is its acceleration when the tension in the supporting cable is 33000N. Given that  $g = 9.8\text{m/s}^2$ .
7. Write two consequences of Newton's second law of motion?
8. State Newton's second, law of motion. Express it mathematically and hence obtain a relation between force and acceleration.
9. A railway car of mass 20 tonnes moves with an initial speed of 54km/hr. On applying brakes, a constant negative acceleration of  $0.3\text{m/s}^2$  is produced.
  - (i) What is the breaking force acting on the car?
  - (ii) In what time it will stop?
  - (iii) What distance will be covered by the car before it finally stops?