SHORT ANSWER TYPE QUESTIONS

(FORCE & LAWS OF MOTION)

1. If two masses in the ratio 3: 5 are accelerated by forces in the ratio 5 : 3 . Find the ratio of acceleration produced
2. An object experience a net zero external unbalanced force . Is it possible for the object to be travelling with a non zero velocity ? If yes state the condition that must be placed on the magnitude and direction of the velocity . If no provide reason
3. Define Force and Momentum . Write the relation between them .What will happen to momentum if no force act on a body ?
4. A Truck starting from rest rolls down a hill with constant acceleration . It travels a distance of 400m in 20 Seconds. Find its acceleration . Find the force acting on it , If its mass is 7 metric Tonnes
5. State Newton's second law of motion and derive the expression for Force
6. A bullet of 10 g moving with a speed of 100 m/s penetrates a sandbag and comes to rest in 1/10 th second Find
   a) The distance through which the bullet penetrates
   b) The retarding force experienced
7. Give reason
   a) The mangoes are detached from the branch if it is shaken well
   b) If we Jerk out a piece of paper from under a heavy book , the book will not move
8. A dumb bell of 10 kg mass falls from a height of 0.8 m . What is the momentum transferred by the dumb bell while hitting the ground ?
9. A constant retarding force of 50 N is supplied to a body of 70 kg moving initially with a speed of 15 m/s . How long does the body take to stop ?

10 Explain why ?

a) a passenger standing in a bus falls backward when the bus suddenly starts moving forward

b)A passenger standing in the bus falls forward when the bus suddenly stops

11 Which would require more force. .accelerating a 10 g mass at 5 m/s or a 20 g mass at 2 m/s^2 ?

12 . From the given v—t graph of a body

a) Calculate the force on the object in the time interval 0—4s
b) Identify the time interval in which there is no net force acting on the body