Solutions

S1. Ans.(a)
Sol. we know that momentum (p) = mv = .01 × 5 = .05kgm/s

S2. Ans.(b)
Sol. Impulse is the change of momentum of an object when the object is acted upon by a force for an interval of time. So, with impulse, you can calculate the change in momentum, or you can use impulse to calculate the average impact force of a collision. The formula for impulse is: Impulse = Force * time.

S3. Ans.(c)
Sol. Newton's Second Law – link to Newton's laws. The rate of change of momentum of an object is directly proportional to the resultant force applied and is in the direction of the resultant force.

S4. Ans.(c)
Sol. If two balls of same masses are dropped on sand, the depths of penetration is same if The product 'mv' is same for both bodies.

S5. Ans.(b)
Sol. A coin placed on a card (rested at the edges of the glass) remains at rest because of Two forces act on the coin which balance each other.

S6. Ans.(a)
Sol. Friction force exerted on the body is less than 50N.

S7. Ans.(c)
Sol. Newton's II law of motion
When you swing your hand, it will take more time to stop the ball. Hence the rate of change of momentum of the ball will decrease. So force acting on your hand will be less.

S8. Ans.(a)
Sol. According to Newton's third law, for every action force there is an equal (in size) and opposite (in direction) reaction force. Forces always come in pairs - known as "action-reaction force pairs.

S9. Ans.(d)
Sol. The bicycle slows down because of the frictional force acting on the tyres of the bicycle. When this frictional force overcomes the force applied by paddling, the bicycle stops.

S10. Ans.(b)
Sol. Newton's first law of motion states Every object is in state of rest or uniform motion unless exernal force act upon. The law itself states or shows the importance of force to bring a moving body to rest or move the body in rest to motion.