1. The momentum of a body of mass m moving with velocity v is:
   A. m/v B. mv
   C. v/m D. m+v (B)
   Explanation : Momentum is the product of mass and velocity, p = mv. It is a vector quantity whose direction is the same as velocity.
2. The SI unit of force is:
   A. Dyne B. Joule
   C. Newton D. Pascal (C)
   Explanation : Force is measured in newtons. One newton is the force required to produce an acceleration of 1 m/s^2 in a mass of 1 kg.
3. A body of mass 40 g moves with a constant velocity of 2 cm/s on a frictionless table. The force acting on the body is:
   A. 39,200 dyne B. 160 dyne
   C. 80 dyne D. Zero (D)
   Explanation : Constant velocity implies no acceleration. By Newton's second law F = ma, force is zero.
4. Which of the following is a vector quantity?
   A. Mass B. Speed
   C. Momentum D. Work (C)
   Explanation : Momentum depends on velocity (a vector), so it also has both magnitude and direction.
5. Impulse is defined as:
   A. The rate of change of velocity
   B. The product of force and displacement
   C. The product of force and time
   D. The change in kinetic energy (C)
   Explanation : Impulse is $I = F \cdot t$. It equals the change in momentum of the body.
6. A ball of mass 0.2 kg moving at 20 m/s comes to rest in 0.1 s. The average force on the ball is:
   A. 40 N B. 20 N
   C. 4 N D. 2 N (A)
   Explanation : Change in momentum = 0.2 × (0 - 20) = -4 kg·m/s. Force = $\Delta p/\Delta t$ = -4 / 0.1 = -40 N. The magnitude is 40 N.
7. The weight of a body is:
   A. Equal to its mass
   B. Equal to gravitational force acting on it
   C. Equal to its momentum
   D. Equal to its acceleration (B)
   Explanation : Weight is given by W = mg. It varies with the acceleration due to gravity.
8. A bullet of mass 0.04 kg moving at 90 m/s is stopped after penetrating 0.6 m into a wooden block. The average resistive force is closest to:
   A. 45 N B. 90 N
   C. 135 N D. 270 N (D)
   Explanation : Retardation $a = v^2 / (2s) = (90^2)/(2 \times 0.6) = 6750\ m/s^2$. Force = ma = 0.04 × 6750 = 270 N.
9. The impulse-momentum theorem states that impulse is equal to:
   A. Rate of change of momentum
   B. Change in momentum
   C. Product of mass and velocity
   D. Product of mass and acceleration (B)
   Explanation : By the theorem, $I = \Delta p = p_2 - p_1$.
10. A batsman hits a 0.15 kg ball back with the same speed of 12 m/s, but in the opposite direction. The impulse imparted is:
    A. 1.8 Ns B. 2.4 Ns
    C. 3.6 Ns D. 6.0 Ns (C)
    Explanation : Change in momentum = 0.15 × 12 - (-0.15 × 12) = 3.6 Ns.