1. A block of mass 10 kg is placed on a horizontal surface. A force of 50 N is applied horizontally to move the block. If the coefficient of friction between the block and the surface is 0.3, what is the net force acting on the block?

a) 15 N

b) 20 N

c) 25 N

d) 30 N

Answer: (b) 20 N

2. A car of mass 1500 kg accelerates from rest under the influence of a force of 3000 N. Ignoring friction, what will be the velocity of the car after 10 seconds?

a) 10 m/s

b) 15 m/s

c) 20 m/s

d) 25 m/s

Answer: (c) 20 m/s

3. A body is moving in a circular path with constant speed. Which of the following statements is true?

a) The body is in equilibrium.

b) The body experiences a tangential force.

c) The body experiences a centripetal force directed toward the centre.

d) The body's velocity remains constant in both magnitude and direction.

Answer: (c) The body experiences a centripetal force directed toward the centre.

4. The momentum of a body is doubled. What happens to the kinetic energy of the body?

a) Remains the same

b) Doubled

c) Halved

d) Quadrupled

Answer:(d) Quadrupled

5. A force of 40 N acts on a body at an angle of 30° to the horizontal. What is the horizontal component of this force?

a) 20 N

b) 34.6 N

c) 30 N d) 40 N

Answer: (b) 34.6 N

6. A force of 10 N is required to move a block on a rough horizontal surface with a constant velocity. What is the frictional force acting on the block?

a) 5 N

b) 10 N

c) 15 N

d) 20 N

Answer: (b) 10 N

7. A ball of mass 0.5 kg is dropped from a height of 10 m. Ignoring air resistance, what is the velocity of the ball just before it hits the ground?

a) 9.8 m/s

b) 14 m/s

c) 19.6 m/s

d) 44 m/s

Answer: (b) 14 m/s

8. If two forces of 6 N and 8 N are acting at a right angle to each other on a body, what is the magnitude of the resultant force?

a) 10 N

b) 12 N

c) 14 N

d) 16 N

Answer: (a) 10 N

9. A body of mass 2 kg is moving with a velocity of 3 m/s. How much force is required to bring it to rest in 4 seconds?

a) 0.75 N

b) 1.5 N

c) 3 N

d) 6 N

Answer: (b) 1.5 N

10. A car accelerates uniformly from 0 to 30 m/s in 10 seconds. What is the magnitude of the acceleration of the car?

a) 1.5 m/s^2

b) 2.5 m/s^2

c) 3 m/s²

d) 4 m/s²

Answer: (c) 3 m/s²