

5-6. Force & Motion : A. Z. ALZAHRANI

1.

Force is a scalar quantity. Is it right?

Yes

No

2.

If the body moves with a constant acceleration, the net force is zero. Is it right?

Yes

No

3.

If the body moves with a constant velocity, the net force is zero. Is it right?

Yes

No

4.

Two forces F and P act on a body, the body will move in the direction of the
force F

force P

net force

5.

Static force on a body equals the net force if the body

moves with a constant speed

moves with a constant acceleration

just starts its motion

does not move

6.

The direction of kinetic friction force is always in the

direction of the greater force

direction of the net force

opposite direction of the net force

opposite direction of the normal force

7.

The reaction 'normal' force is always equivalent to the weight of the body. Is it right?

Yes

No

8.

The direction of the acceleration of moving system is in the direction of its velocity

its net force

its displacement

its weight

9.

If the summation of total forces acting on a body is zero, the body is in

static equilibrium

kinetic equilibrium

both are correct

none is correct

10.

Two blocks of masses $M = 40.0 \text{ kg}$ and m , are connected by a light string that passes over a massless pulley. If the tension in the string is $T = 300 \text{ N}$. Find the value of m . (Ignore friction)

24.8 kg

40 kg

30.5 kg

28.6 kg

11.

A 10 kg box is lowered with a downward acceleration of 1.8 m/s^2 by means of a rope. The tension in the rope is

116 N

18 N

80 N

98 N

12.

Ali (super strong man) is pushing his car (1000 kg) with a uniform acceleration of 0.5 m/s^2 by applying a force F at an angle 20° with the horizontal. if the coefficient of kinetic friction between the tyre and road is 0.65, the magnitude of

F is

980 N

9576 N

12564 N

500 N

13.

A car (1000 kg) is moving in a round-about with a constant speed of 40 km/h. If the radius of the round is 10 m, the force acting on the car is

980 N

12345 N

160000 N

200000 N

14.

A car orbits a circular road of diameter 40 m. If the acceleration is 20 m/s^2 , the speed of the car is

28.28 m/s

20 m/s

15 m/s

10 m/s

15.

A car takes 4 min to complete 6 turns around 25-m radius road. The speed of the car is

60 km/hr

34 km/hr

14 km/hr

10 km/hr

16.

The direction of the acceleration due to a circular motion is

towards the centre of the circle

outwards the centre of the circle

tangent to the circle

none

17.

An 8-kg box is pulled over a frictionless floor with a horizontal force $F=50 \text{ N}$. If the box starts its motion from the rest, its speed after 2 sec is

8 m/s
12.5 m/s
15.2 m/s
18.6 m/s

18.

An 8-kg box is pulled over a rough floor (kinetic friction coefficient is 0.25) with a horizontal force $F=50$ N. If the box starts its motion from the rest, its speed after 2 sec is

12.5 m/s
10.3 m/s
9.5 m/s
7.6 m/s

19.

A 5-kg box is pulled up an inclined plane (angle $=30^\circ$) with a horizontal force $F=50$ N. If the box moves with a constant speed, what is the coefficient of kinetic friction?

0.17
0.27
0.37
0.47

20.

An 80-kg box is affected by a force of 500 N with an angle of 40° with the horizontal. If the box is started its motion from rest and covered 8 m in 2 sec, what is the kinetic friction coefficient?

0.24
0.14
0.34
0.44