

EFFECTS OF FORCES

1.

Which property of an object **cannot** be changed by a force?

- A its mass
- B its motion
- C its shape
- D its size

Ans

A

2.

The object in the diagram is acted upon by the two forces shown.



What is the effect of these forces?

- A The object moves to the left with constant speed.
- B The object moves to the left with constant acceleration.
- C The object moves to the right with constant speed.
- D The object moves to the right with constant acceleration.

Ans

D

3.

In which situation would the object described be given an increase in its total energy?

- A a battery-powered torch being switched on
- B a firework exploding
- C a parachutist falling to the ground
- D a skier being pulled up a slope

Ans

D

4.

A brick of mass of 3.0 kg rests on a shelf. The brick drops off the shelf. The brick hits the ground at a speed of 8.0 m/s. Air resistance can be ignored.

The acceleration of free fall g is 10 m/s^2 .

How much kinetic energy did the brick have just before it hit the ground, and how much potential energy did the brick have when it was on the shelf?

	kinetic energy before hitting ground / J	potential energy on shelf / J
A	24	24
B	24	96
C	96	0
D	96	96

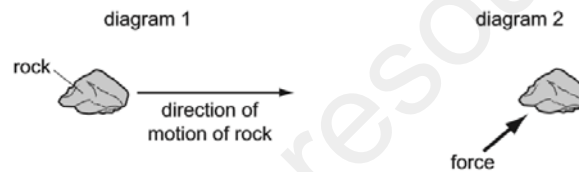
Ans

D

5.

Diagram 1 shows a small rock moving through space. There are no forces acting on the rock.

A force is now applied to the rock. Diagram 2 shows the direction of the force.



What is the effect, if any, of this force on the motion of the rock?

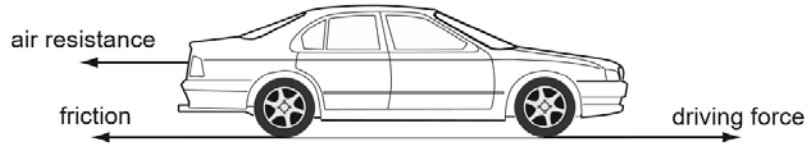
	speed of body	direction of motion of body
A	changes	changes
B	changes	no effect
C	no effect	changes
D	no effect	no effect

Ans

A

6.

Three horizontal forces act on a car that is moving along a straight, level road.



Which combination of forces would result in the car moving at constant speed?

	air resistance	friction	driving force
A	200 N	1000 N	800 N
B	800 N	1000 N	200 N
C	800 N	200 N	1000 N
D	1000 N	200 N	800 N

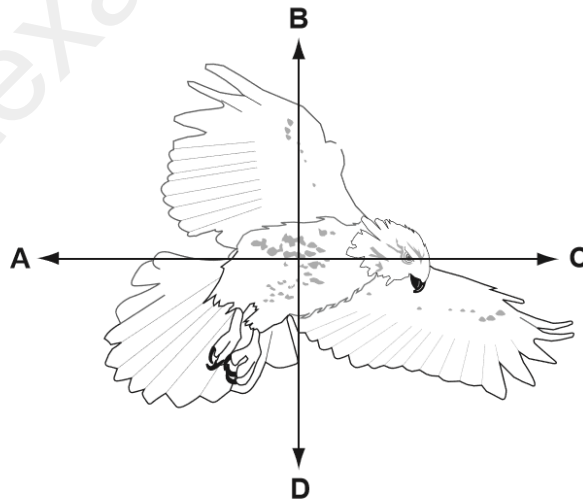
Ans:

C

7.

The diagram shows a bird in flight.

In which direction does the weight of the bird act?



Ans:

D

8.

A newton is a unit of force.

Which quantity is measured in newtons?

A acceleration

B density

C mass

D weight

Ans:

D

9.

A student stretches a steel spring by hanging a load on it. The measurements for the extension of the spring are shown in the table.

load/N	1.0	2.0	3.0	4.0	5.0	6.0
extension/cm	0.5	1.0	1.5	2.0	2.5	3.0

What is the value for the spring constant k of the spring?

- A 0.50 N/cm B 1.0 N/cm C 2.0 N/cm D 18 N/cm

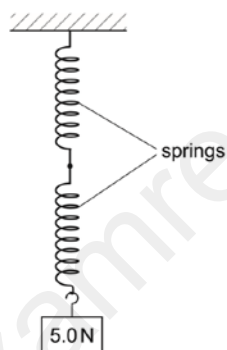
Ans

C

10.

A spring obeys Hooke's law. A load of 10 N hangs from the spring and causes the spring to extend by 12 mm.

Two springs, identical to the first one, are now joined as shown. A load of 5.0 N is hung from the springs.



What is the total extension of the combination of the two springs?

- A 3.0 mm B 6.0 mm C 12 mm D 24 mm

Ans

C

11.

A student stretches a steel spring by hanging a load on it. The measurements for the extension of the spring are shown in the table.

load/N	1.0	2.0	3.0	4.0	5.0	6.0
extension/cm	0.5	1.0	1.5	2.0	2.5	3.0

What is the value for the spring constant k of the spring?

- A 0.50 N/cm B 1.0 N/cm C 2.0 N/cm D 18 N/cm

Ans

C

12.

A student stretches a steel spring by hanging a load on it. The measurements for the extension of the spring are shown in the table.

load/N	1.0	2.0	3.0	4.0	5.0	6.0
extension/cm	0.5	1.0	1.5	2.0	2.5	3.0

What is the value for the spring constant k of the spring?

- A** 0.50 N/cm **B** 1.0 N/cm **C** 2.0 N/cm **D** 18 N/cm

Ans

C