Mass and Weight – 2021 IGCSE 0625

1. June/2021/Papers_11,12&13/No.2,3

Two stones of different weights fall at the same time from a table. Air resistance may be ignored.

What will happen and why?

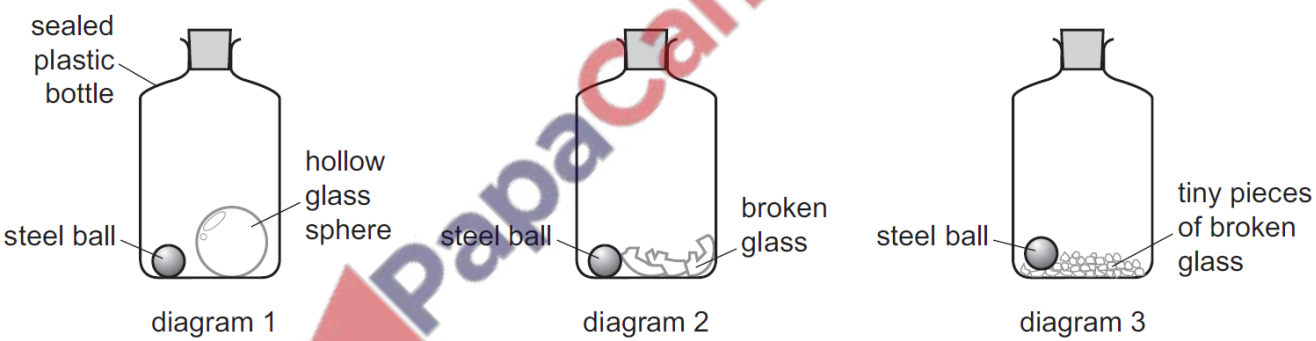
	what will happen	why
A	Both stones hit the floor at the same time.	Acceleration of free fall is constant.
B	Both stones hit the floor at the same time.	They fall at constant speed.
C	The heavier stone hits the floor first.	Acceleration increases with weight.
D	The heavier stone hits the floor first.	Speed increases with weight.

2. June/2021/Papers_11,12&13/No.4

Diagram 1 shows a sealed plastic bottle containing a hollow glass sphere and a steel ball.

Diagram 2 shows the same bottle after it has been shaken.

Diagram 3 shows the same bottle after it has been shaken again until the broken glass is in tiny pieces.



The mass of the bottle and contents in diagram 1 is m_1.

The mass of the bottle and contents in diagram 2 is m_2.

The mass of the bottle and contents in diagram 3 is m_3.

Which statement gives the correct relation between m_1, m_2 and m_3?

A m_1 is equal to m_2 and m_2 is equal to m_3.

B m_1 is greater than m_2 and m_2 is greater than m_3.

C m_1 is less than m_2 and m_2 is greater than m_3.

D m_1 is less than m_2 and m_2 is less than m_3.

3. June/2021/Paper_11/No.5

On Mars, the acceleration of free fall g is 3.7 m / s^2.

What is the weight of a 2.0 kg mass on Mars?

A 0.54 N **B** 1.9 N **C** 7.4 N **D** 20 N

4. June/2021/Paper_12/No.5

An astronaut wants to know how much she would weigh on different moons.

She measures her mass on Earth to be 82 kg. She researches the values of g on different moons and uses these values to calculate her weight.

The results are shown.

Which weight is calculated correctly?

	name of moon	g N / kg	calculated weight / N
A	Callisto	1.2	68
B	Charon	0.28	23
C	Dione	0.23	2.3
D	Umbriel	0.23	0.0028

5. June/2021/Paper_13/No.5

The table shows the weight of a 15.0 kg mass placed on different planets.

Which planet has a gravitational field strength of 11.1 N / kg?

	planet	weight of 15.0 kg mass / N
A	Jupiter	389
B	Saturn	167
C	Uranus	160
D	Neptune	211

6. June/2021/Paper_21/No.4

An object of mass 2.0 kg is taken from the Earth, where the gravitational field strength is 10 N / kg, to the Moon, where the gravitational field strength is 1.6 N / kg.

Which row is correct?

	weight on the Earth / N	weight on the Moon / N
A	0.20	0.80
B	0.20	3.2
C	20	0.80
D	20	3.2

7. June/2021/Paper_22/No.4

What is the best description of the meaning of the 'mass' of an object?

A the space occupied by the object

B the force that gravity exerts on the object

C the resistance of the object to changes in motion

D the closeness of packing of the molecules in the object

8. June/2021/Paper_23/No.4

An object is on the surface of the Earth.

Which statement describes the weight of the object?

A the quantity of material that the object contains

B the quantity of space that the object takes up

C the gravitational force acting on the object

D the object's resistance to a change in its motion

9. March/2021/Paper_12/No.4

What is weight?

A a frictional force

B a magnetic force

C a gravitational force

D an electromagnetic force

10. March/2021/Paper_22/No.4

Which statement about mass is correct?

A A mass of 10 kg weighs 1 N near the Earth's surface.

B Mass is a gravitational force.

C Mass increases when the gravitational field strength increases.

D The greater the mass of a body, the more it resists a change in its motion.