Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic : Motion And Forces

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Name of the Student:_____
Max. **Marks : 23 Marks**   **Time : 23 Minutes**

Q1.

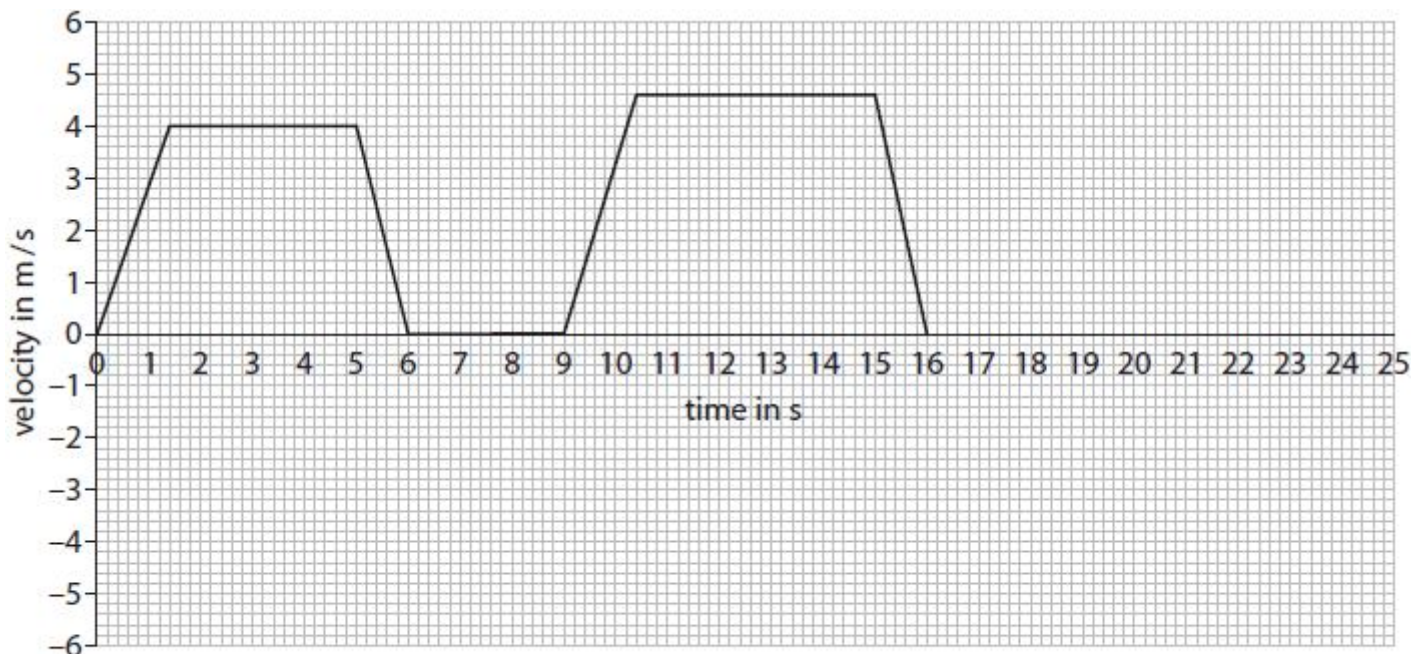Figure 8 is a velocity/time graph for a lift moving upwards in a tall building.

Figure 8

Use the graph in Figure 8 to determine the distance that the lift travelled during the first 6.0 s.

(3)

distance = ... m

(Total for question = 3 marks)

Q2.

Figure 18 shows a ball before and after it collides with a wall.

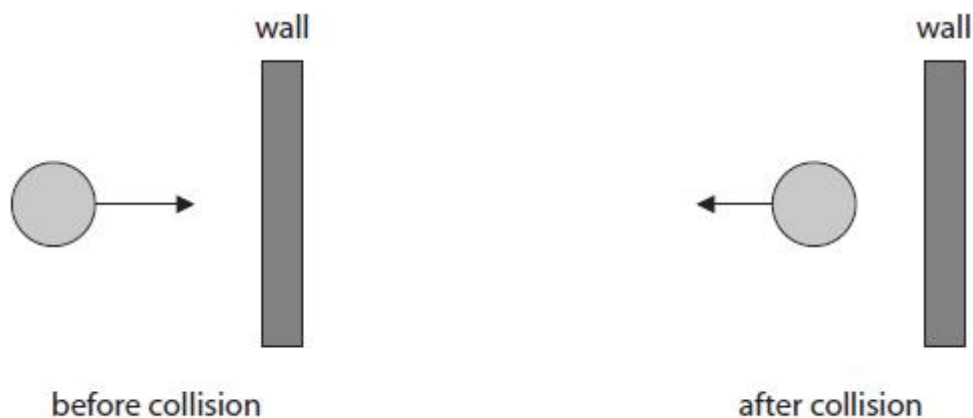The arrows show the direction of movement of the ball.

Figure 18

Before the collision, the momentum of the ball is 0.80 kg m / s.

After the collision, the momentum of the ball is 0.60 kg m / s in the opposite direction.

The ball is in contact with the wall for a time of 70 ms during the collision.

Calculate the force exerted on the ball by the wall.

(3)

Use an equation selected from the list of equations at the end of the paper.

force = ... N

(Total for question = 3 marks)

Q3.

The **inertial** mass of an object is a measure of how difficult it is to change the velocity of the object.

A force of 450 N acts on a car to give the car an acceleration of 0.35 m/s^2.

Calculate the **inertial** mass of the car.

(2)

inertial mass of car .... kg

(Total for question = 2 marks)

Q4.

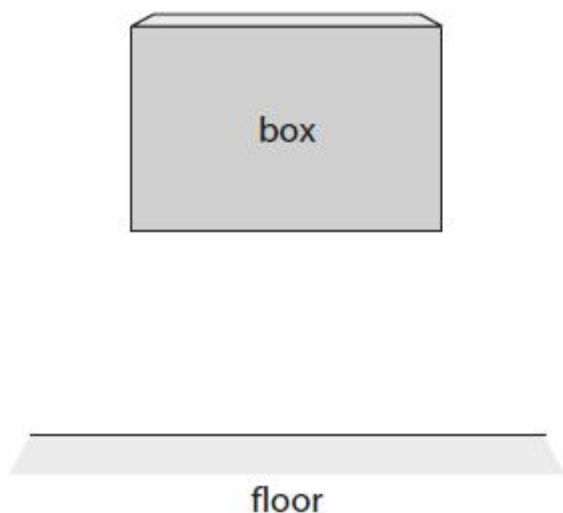Figure 11a shows a box falling towards a hard floor.
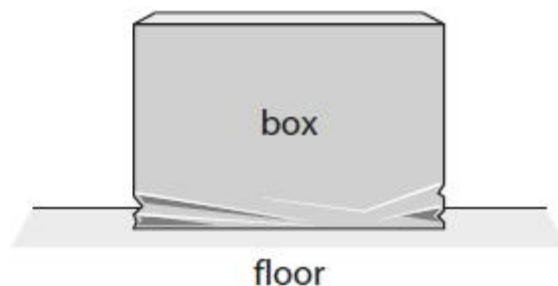

floor

Figure 11a

floor

Figure 11b

The box hits the floor and crumples a little before it comes to rest as shown in Figure 11b.

The momentum of the box just before it hits the floor is 8.7 kg m/s.

The box comes to rest 0.35 s after it first hits the floor.

(i) Calculate the magnitude of the force exerted by the floor on the box.

Use an equation selected from the list of equations at the end of this paper.

(2)

force exerted by the floor on the box = ... N

(ii) State the magnitude and direction of the force exerted by the box on the floor.

(2)

magnitude ....

direction ....

(Total for question = 4 marks)

Q5.

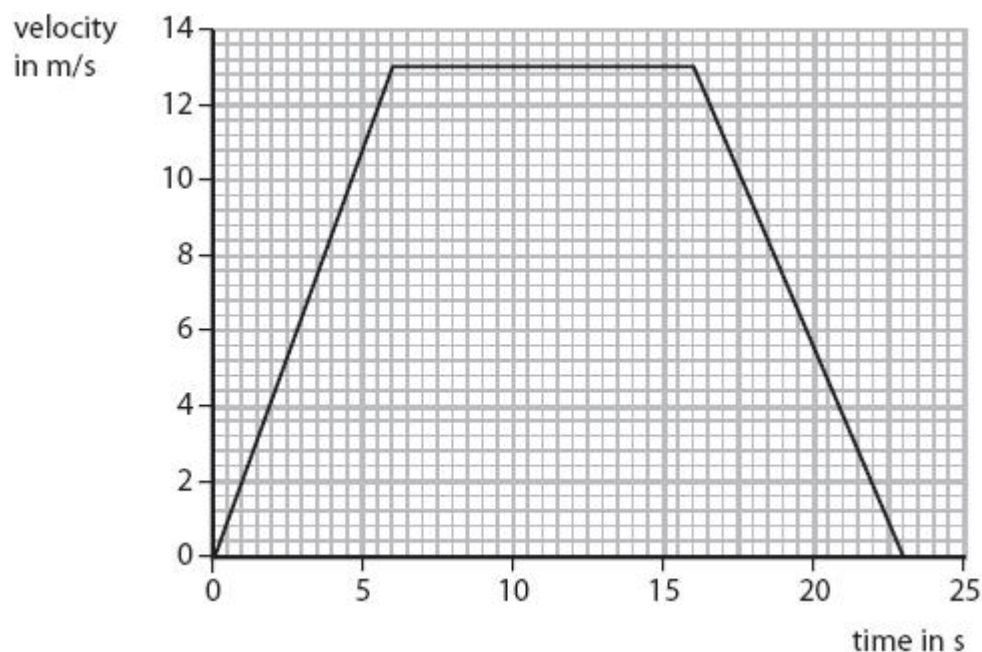Figure 3 is a velocity-time graph for the motion of a van on a long, straight road.

Figure 3

(i) The van accelerates at 2.2 m/s^2.

The force causing this acceleration is 5.5 kN.
Calculate the mass of the van.

(3)

mass = ... kg

(ii) Calculate the distance travelled by the van between 16.0 s and 23.0 s.

Give your answer correct to 2 significant figures.

(4)

distance travelled = ... m

(Total for question = 7 marks)

Q6.

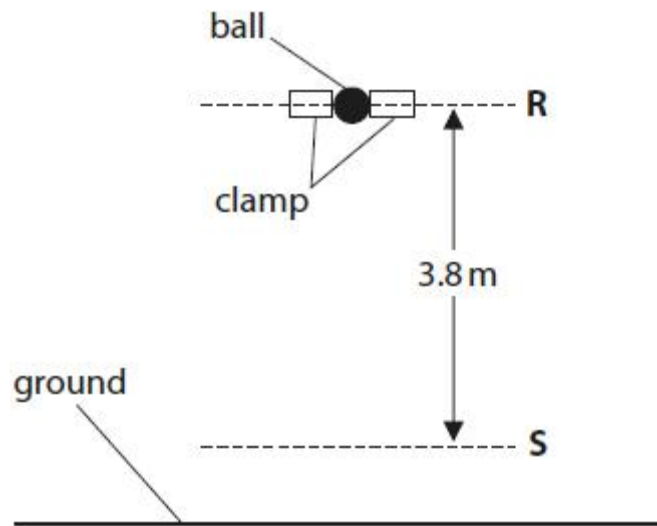Figure 12 shows a ball held in a clamp at **R**, above the ground.

Figure 12

The ball is released from the clamp and falls.

S is 3.8 m below **R**.

At **S** the momentum of the ball is 0.40 kg m/s.

Calculate the mass of the ball.

Acceleration due to gravity, g, = 10 m / s^2

(4)

mass of the ball .... kg

(Total for question = 4 marks)