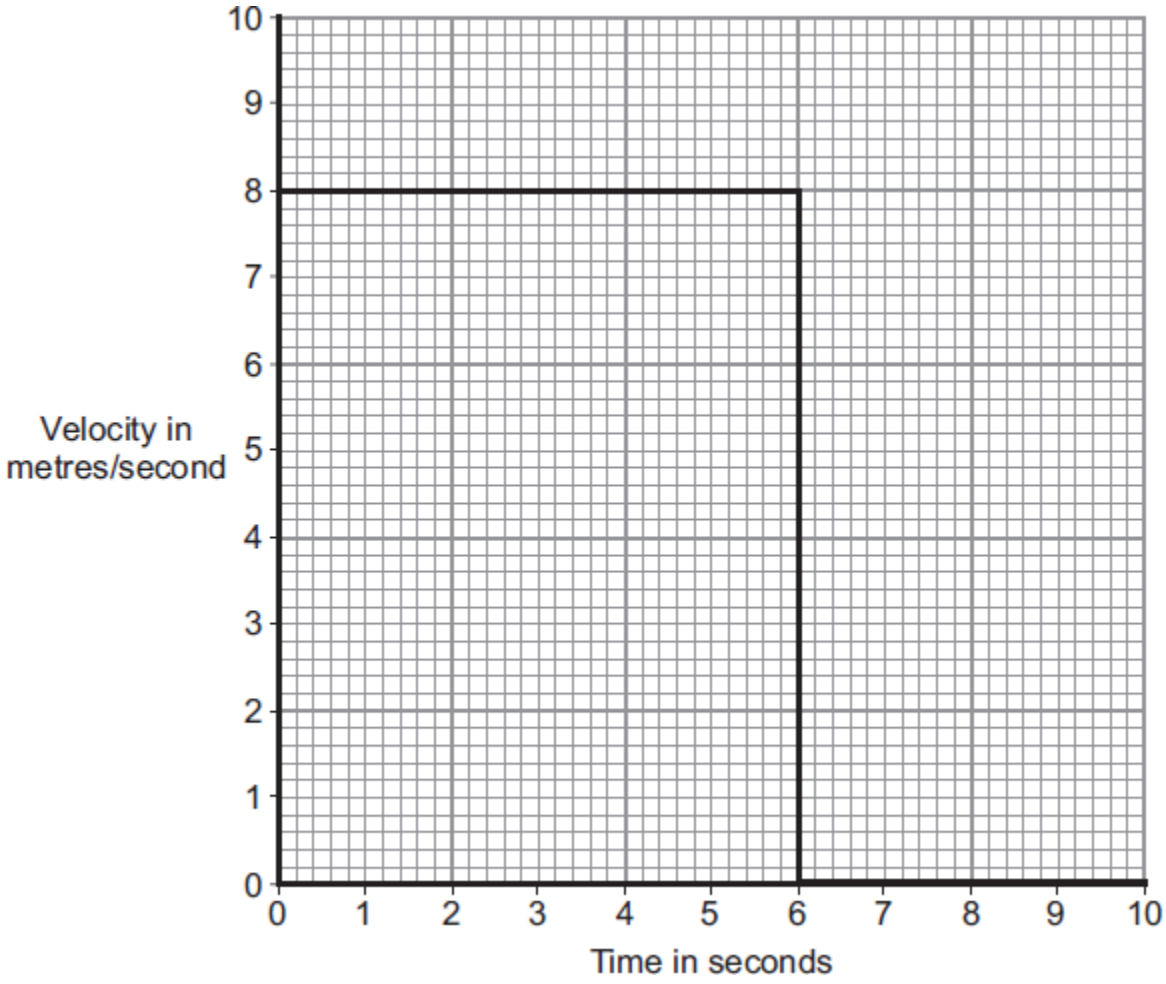
Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic: Forces (High Demand Questions)

Merit Minds
www.merit-minds.com
Exam Preparation and Free Resources

Name of the Student:_____
Max. Marks : 18 Marks **Time : 18 Minutes**

Q1.

The diagram shows the velocity-time graph for an object over a 10 second period.



(a) Use the graph to calculate the distance travelled by the object in 10 seconds.

Show clearly how you work out your answer.

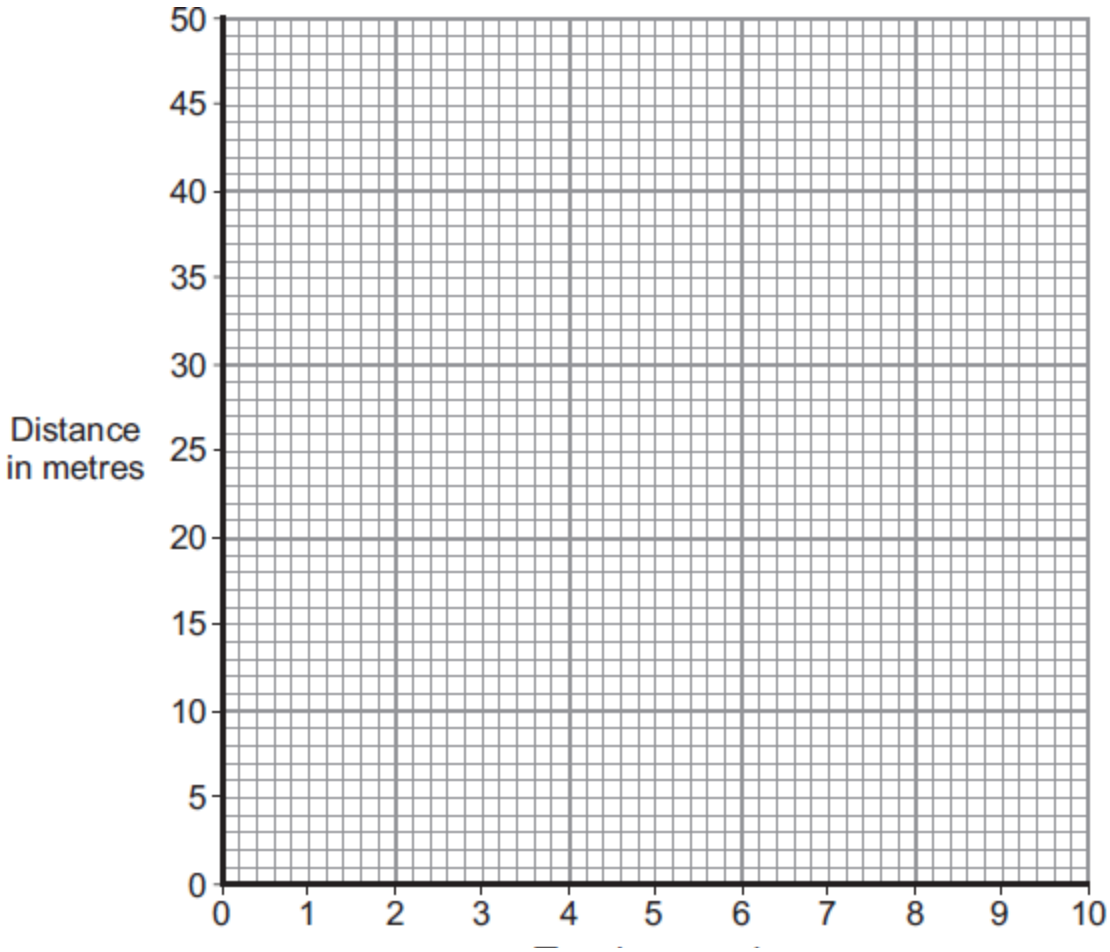
_____

_____

Distance = _____ m

(2)

(b) Complete the distance-time graph for the object over the same 10 seconds.



(2)
(Total 4 marks)

Q2.

(a) In any collision, the total momentum of the colliding objects is usually conserved.

(i) What is meant by the term 'momentum is conserved'?

_____

_____

(1)

(ii) In a collision, momentum is **not** always conserved.

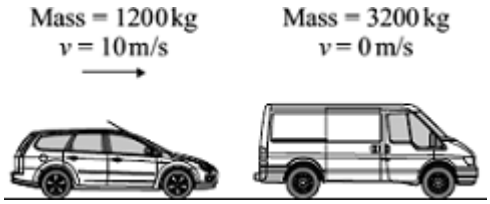
Why?

_____

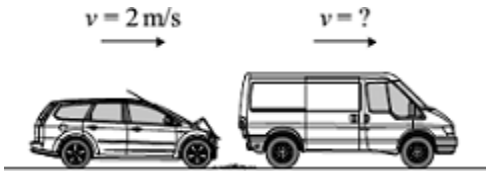
_____

(1)

(b) The diagram shows a car and a van, just before and just after the car collided with the van.



Before collision



After collision

(i) Use the information in the diagram to calculate the **change** in the momentum of the car.

Show clearly how you work out your answer and give the unit.

_____

_____

_____

_____

Change in momentum =_____

(3)

(ii) Use the idea of conservation of momentum to calculate the velocity of the van when it is pushed forward by the collision.

Show clearly how you work out your answer.

_____

_____

_____

Velocity =_____ m/s forward

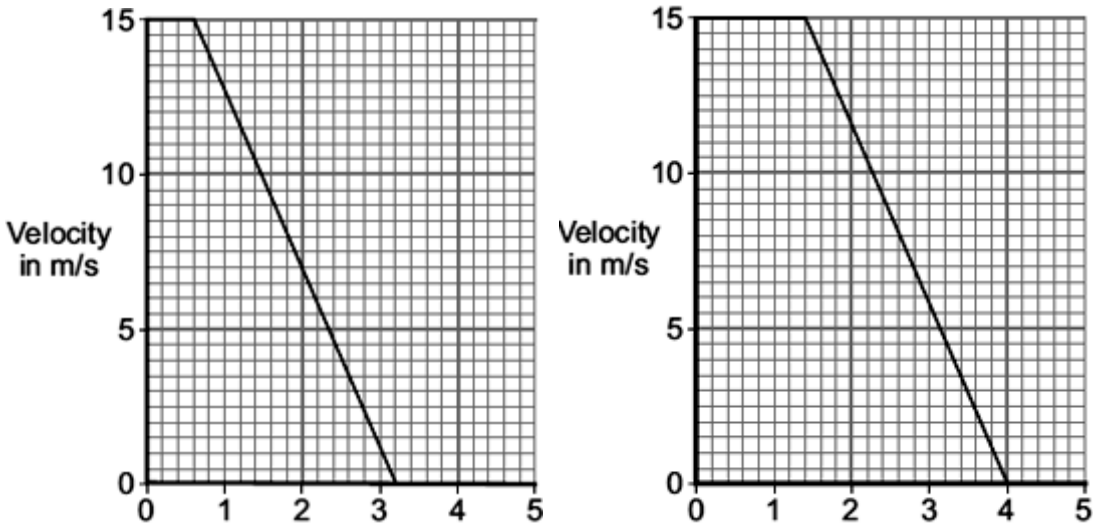
(2)

(Total 7 marks)

Q3.

(a) The graphs show how the velocity of two cars, **A** and **B**, change from the moment the car drivers see an obstacle blocking the road.

Car A **Car B**



One of the car drivers has been drinking alcohol. The other driver is wide awake and alert.

(i) How does a comparison of the two graphs suggest that the driver of car **B** is the one who has been drinking alcohol?

_____

_____

(1)

(ii) How do the graphs show that the two cars have the same deceleration?

_____

_____

(1)

(iii) Use the graphs to calculate how much further car **B** travels before stopping compared to car **A**.

Show clearly how you work out your answer.

_____

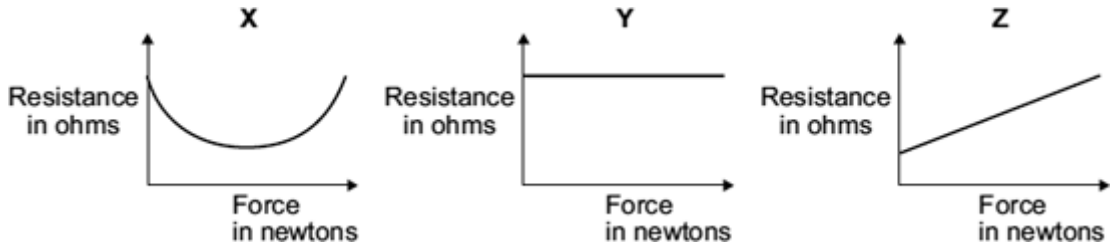
_____

_____

Additional stopping distance = _____ m

(3)

(b) In a crash test laboratory, scientists use sensors to measure the forces exerted in collisions. The graphs show how the electrical resistance of 3 experimental types of sensor, **X**, **Y** and **Z**, change with the force applied to the sensor.



Which of the sensors, **X**, **Y** or **Z**, would be the best one to use as a force sensor?

_____

Give a reason for your answer.

_____

_____

_____

_____

(2)

(Total 7 marks)