Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic : 2_Motion and Forces

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

Q1.

Which of these speeds would be normal for a person walking?

(1)

- ☒ **A** 0.1 m/s
- ☒ **B** 1.0 m/s
- ☒ **C** 10 m/s
- ☒ **D** 100 m/s

(Total for question = 1 mark)

Q2.

The mass of a car is 1200 kg.

Calculate the resultant force on the car required to produce an acceleration of 0.8 m/s^2.

(2)

.....

Q3.

Answer the question with a cross in the box you think is correct (☒). If you change your mind about an answer, put a line through the box (☒) and then mark your new answer with a cross (☒).

A car is being driven at a constant velocity.

The driver sees an obstacle in the road ahead.

The driver uses the brakes to stop as quickly as possible.

Figure 3 shows the velocity/time graph for the car from the time when the driver sees the obstacle.

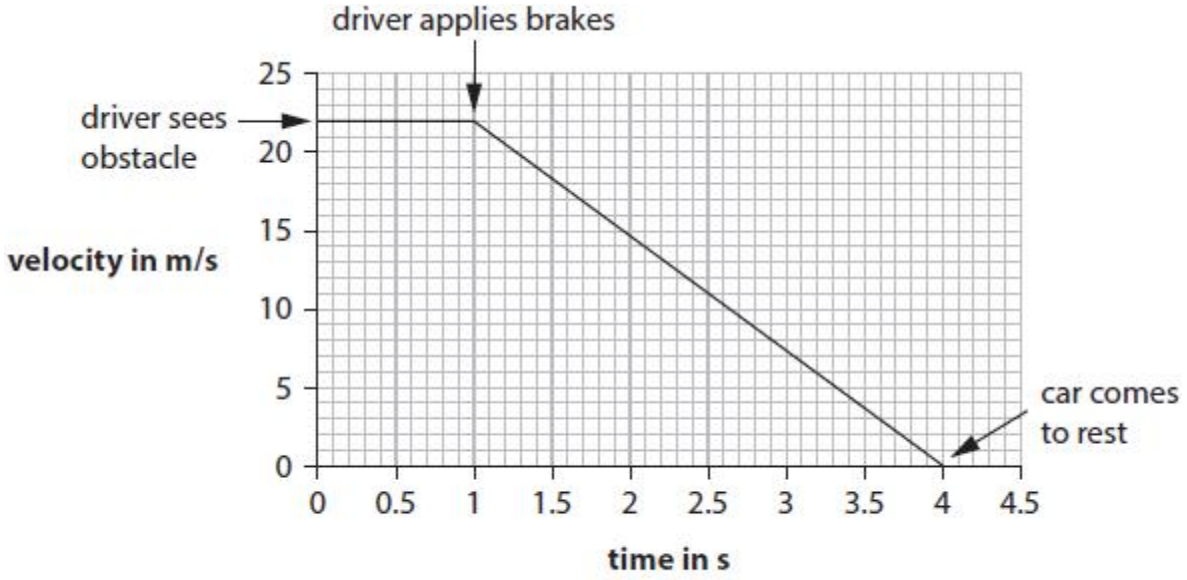

Figure 3

(i) Which of these is the driver's reaction time shown in Figure 3?

(1)

- ☒ **A** 0 s
- ☒ **B** 1 s
- ☒ **C** 4 s
- ☒ **D** 22 s

(ii) State **one** factor that might increase a driver's reaction time.

(1)

.....

.....

(iii) Calculate the distance travelled between when the driver applies the brakes and when the car comes to rest in Figure 3.

Use the equation

distance = area under the sloping line of the graph in Figure 3

(3)

distance = ... m

(Total for question = 5 marks)

Q4.

Two people, L and M, have a 100 m race.

L starts running before M.

Figure 11 shows a distance/time graph of the race.

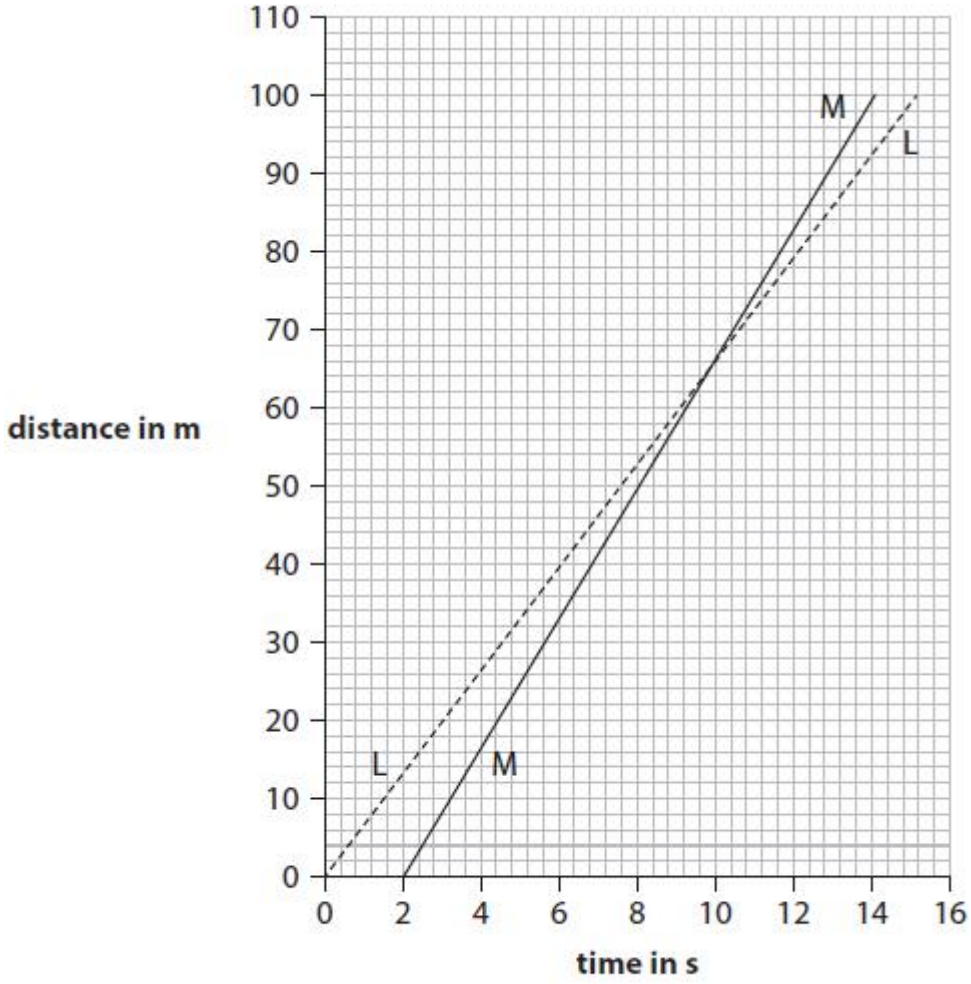

Figure 11

(i) State the **distance** that L has run when M overtakes.

(1)

distance = ... m

(ii) Calculate the velocity of L when running the 100 m race.

(2)

velocity = ... m/s

(Total for question = 3 marks)

Q5.

A different car has a device that can detect rain.

This device is linked to a computer that can change the speed of the car.

In wet weather, the computer changes the speed of the car.

(i) State the change in speed that the computer should make when the road is wet.

(1)

.....

.....

(ii) Give a reason why this change in speed is necessary when the road is wet.

(1)

.....

.....

(Total for question = 2 marks)

Q6.

(i) State the equation that relates acceleration to change in velocity and time taken.

(1)

(ii) A van accelerates from a velocity of 2 m / s to a velocity of 20 m / s in 12 s.
Calculate the acceleration of the van.

(2)

acceleration = ... m / s^2

(Total for question = 3 marks)

Q7.

A student wants to measure the average speed of a cyclist.
The student estimates that one of his own steps is 1 m.
He counts 100 steps between two posts on a track.
He uses a stopwatch to measure the time the cyclist takes to travel between the two posts.
Figure 2 shows the set-up used to measure the average speed.

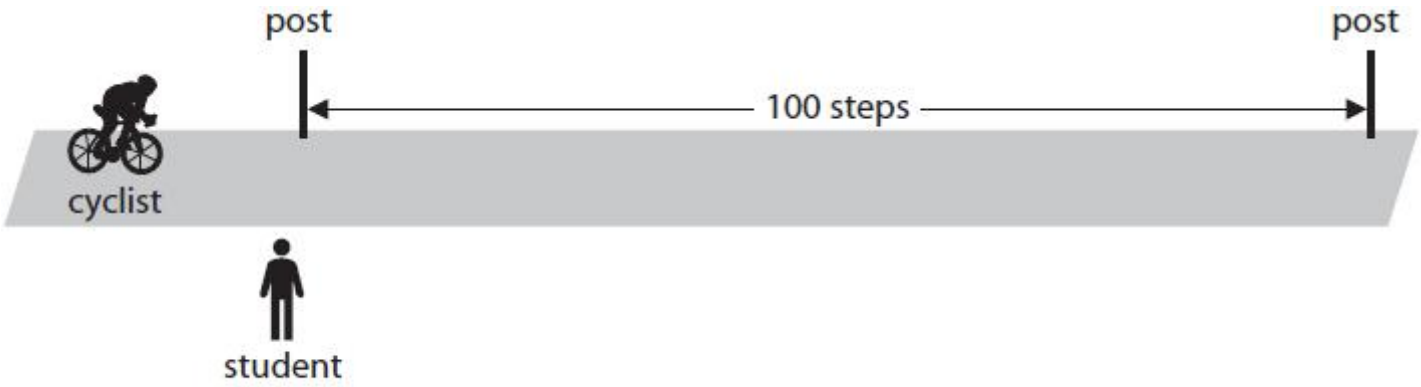

Figure 2

State **two** improvements the student could make to this method.

(2)

1 .....

.....

2 .....

.....

(Total for question = 2 marks)