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

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

Q1.

(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)

Q2.

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.

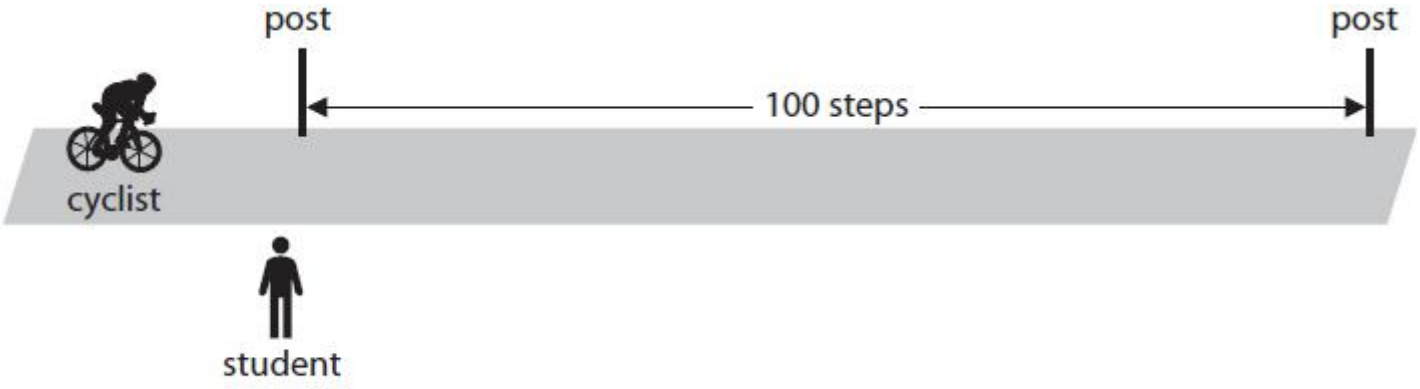


Figure 2

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

(2)

1 .....

.....

2 .....

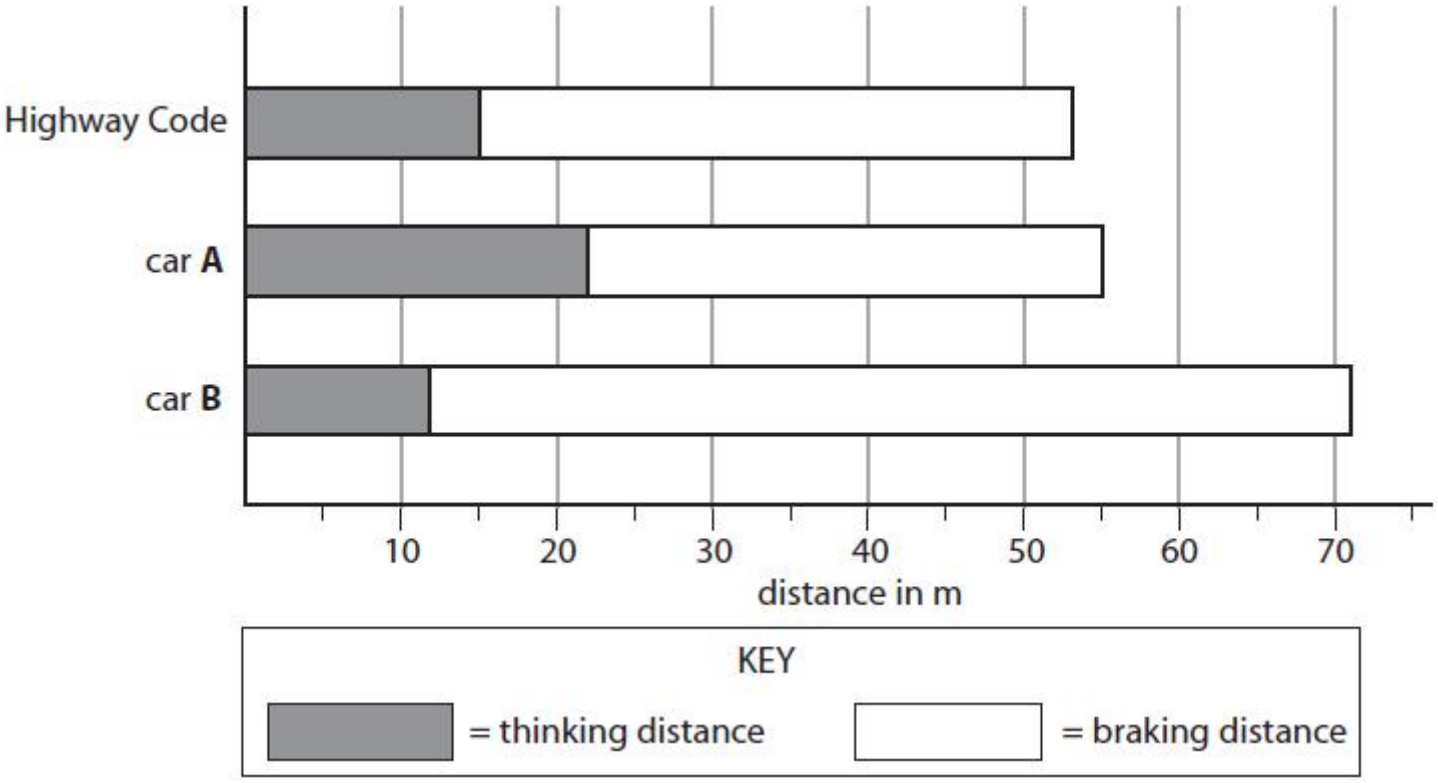
.....

(Total for question = 2 marks)

Q3.

* The chart shows the thinking, braking and stopping distances for an average car and driver stopping from 50 miles per hour as shown in the Highway Code.

It also shows the thinking, braking and stopping distances for drivers of cars **A** and **B**, both stopping from 50 miles per hour.



A and **B** are different cars on different roads.

Use the factors that can affect thinking and braking distances to explain the differences in stopping distances for cars **A** and **B**.

(6)

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Q4.

Figure 3 shows how the thinking distance and braking distance change depending on the speed of a car.

speed in km / h	speed in m / s	thinking distance in m	braking distance in m	stopping distance in m
50	14	21	21	42
60	17	25	31	56
70		29	42	71
80	22	33	55	88
90	25	37	85	107
100	28	42	85	127

Figure 3

(i) Fill in the gap in the table.

(1)

(ii) A student studies these results and writes the conclusion:

'The thinking distance is proportional to the speed of the car'.
Comment on the student's conclusion.

(3)

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(Total for question = 4 marks)

Q5.

A student needs to measure the average speed of an accelerating trolley between two marks on a bench.

Figure 5 shows the arrangement of some apparatus that the student can use.

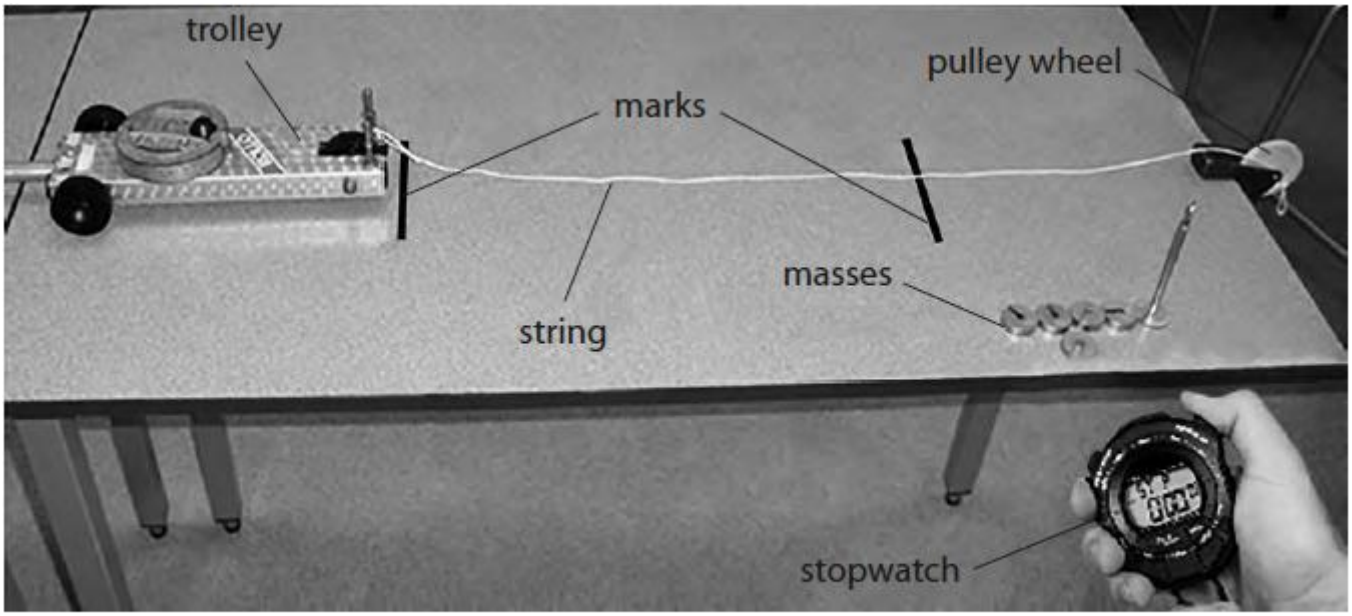

Figure 5

(i) One piece of apparatus is missing from the diagram.

This piece of apparatus is needed to determine the average speed.
State the extra piece of apparatus needed to determine the average speed.

(1)

.....

(ii) Describe how the student can make the trolley accelerate along the bench.

(2)

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(iii) The student wishes to develop the experiment to determine the acceleration of the trolley.

State **one other** measurement that the student must make to determine the acceleration of the trolley.

(1)

.....

.....

(Total for question = 4 marks)

Q6.

Figure 17 is a velocity / time graph for 15 s of a cyclist's journey.

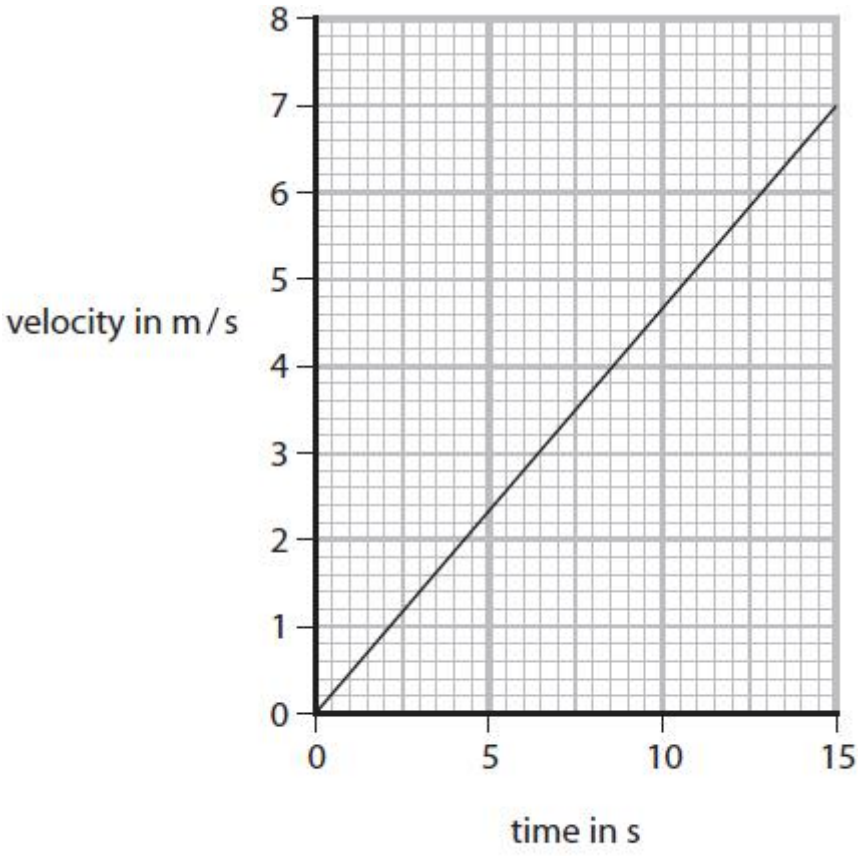

Figure 17

Calculate the distance the cyclist travels in the 15 s.

(3)

distance = ... m

(Total for question = 3 marks)

Q7.

Use words from the box to complete the sentences below.

direction	energy	mass	size

(2)

Vectors have size and ..... .

Scalars have only ..... .

(Total for question = 2 marks)