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

Name of the Student:_____
Max. Marks : 17 Marks **Time : 17 Minutes**

Q1.

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 travelling at 10 m/s.

The driver sees a danger and stops the car.

(i) The stopping distance for the car would be smaller if the car

(1)

- ☐ **A** had more passengers
- ☐ **B** had worn tyres
- ☐ **C** needed new brakes
- ☐ **D** was travelling more slowly

Figure 4 shows a speed-time graph for the driver stopping the car.

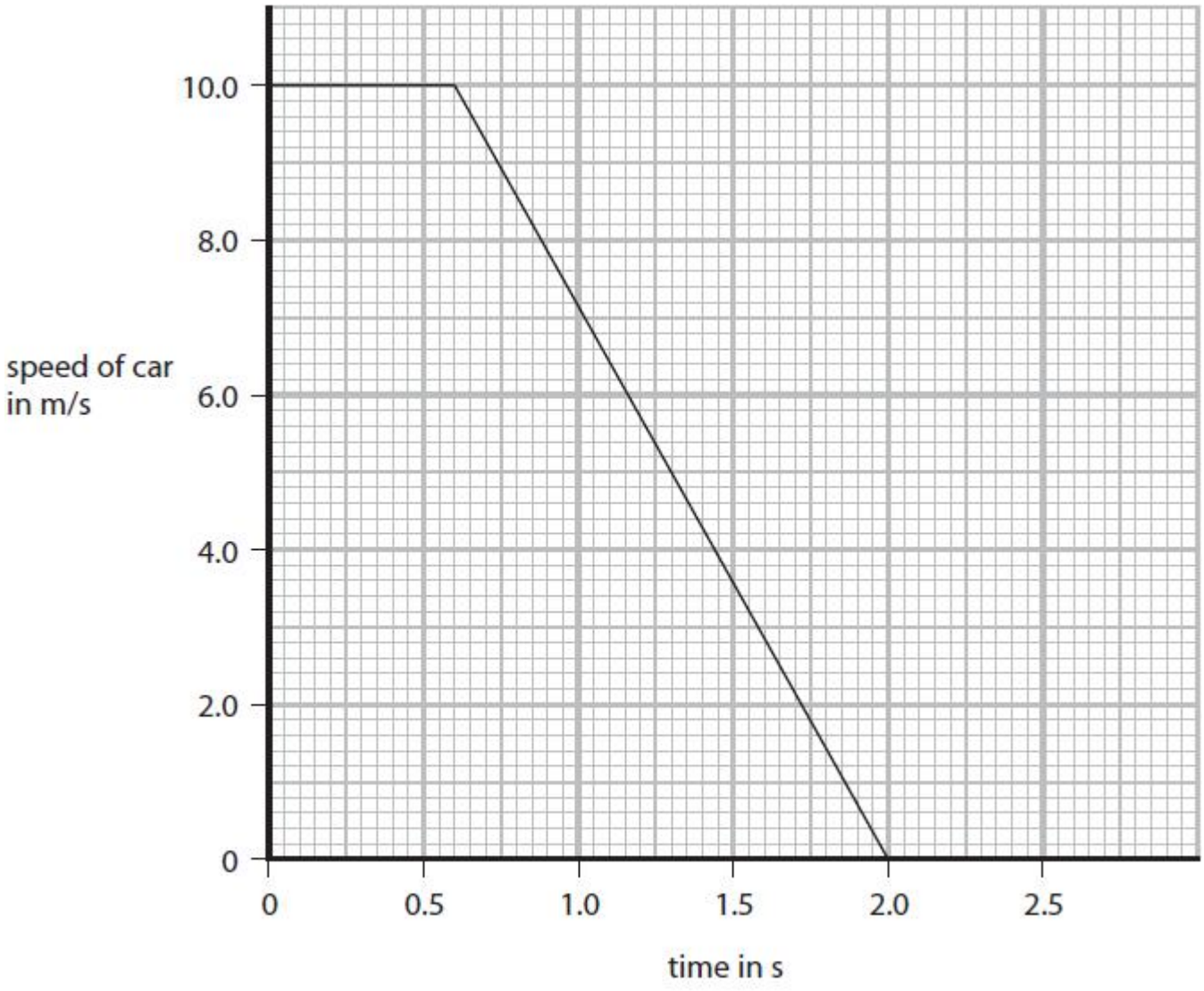

Figure 4

(ii) Use the graph to find the driver's reaction time.

(2)

reaction time = ... s

(Total for question = 3 marks)

Q2.

Shot-put is an Olympic event.
The shot is a heavy ball.
An athlete throws the shot as far as possible.

A sports scientist analyses an athlete's throw to help improve performance.

The scientist can measure several quantities in the analysis.

Which one of the following is a scalar quantity?

(1)

- ☒ **A** acceleration
- ☒ **B** force
- ☒ **C** mass
- ☒ **D** velocity

(Total for question = 1 mark)

Q3.

Figure 6 shows a set of results used to find the average stopping distance of the toy car on a surface.

test number	stopping distance in m
1	0.35
2	0.32
3	0.52
4	0.38
5	0.33

Figure 6

(i) State the anomalous value of stopping distance given in the table in Figure 6.

(1)

.....

(ii) Use the results in Figure 6 to calculate the average stopping distance.

(2)

average stopping distance = ... m

(iii) State **one** way the student could increase the speed of the car as it reaches the flat surface.

(1)

.....

.....

(Total for question = 4 marks)

Q4.

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 ☒.

(i) Which of these is the correct equation that relates force, mass and acceleration?

(1)

- ☐ **A** F = *m* + *a*
- ☐ **B** F = *m* − *a*
- ☐ **C** F = *m* × *a*
- ☐ **D** F = *m* ÷ *a*

(ii) A cyclist has a mass of 70 kg.

Calculate the force needed to accelerate the cyclist at 2.0 m / s^2.
State the unit.

(2)

force = ...unit = ...

(Total for question = 3 marks)

Q5.

(i) Which of these would be a typical speed for a racing cyclist travelling down a steep straight slope?

(1)

- ☐ **A** 0.2 m/s
- ☐ **B** 2 m/s
- ☐ **C** 20 m/s
- ☐ **D** 200 m/s

(ii) A cyclist travels down a slope.

The top of the slope is 20 m vertically above the bottom of the slope.
The cyclist has a mass of 75 kg.
Calculate the change in gravitational potential energy of the cyclist between the top and the bottom of the slope.
The gravitational field strength, g, is 10 N/kg.

(3)

change in gravitational potential energy = ... J

(Total for question = 4 marks)

Q6.

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 ☒.

Quantities can be either scalar or vector.

Which of these is a vector quantity?

(1)

- ☐ **A** mass
- ☐ **B** force
- ☐ **C** energy
- ☐ **D** distance

(Total for question = 1 mark)

Q7.

A car driver sees a rabbit on the road.

The driver makes an emergency stop after he sees the rabbit.

Figure 6 shows the speed of the car from the time the driver sees the rabbit until the car stops.

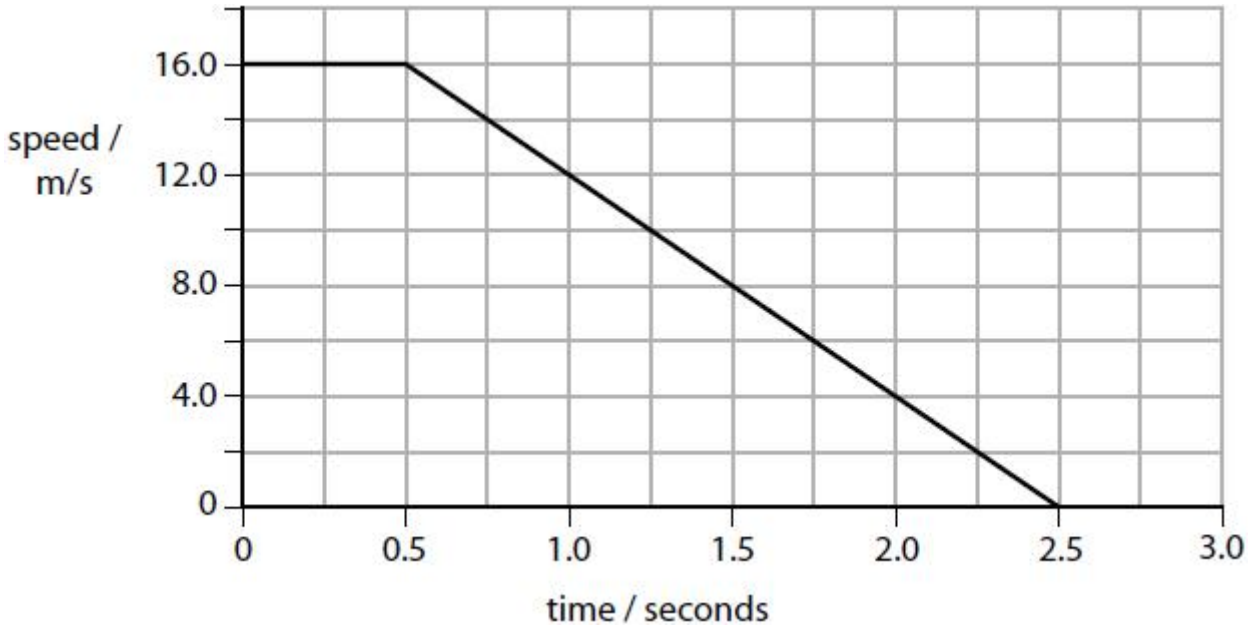

Figure 6

The distance travelled by the car from the time the driver first sees the rabbit to when car starts to slow down is the

(1)

- ☒ **A** average distance
- ☒ **B** braking distance
- ☒ **C** stopping distance
- ☒ **D** thinking distance

(Total for question = 1 mark)