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

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

Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Q1.

Which row of the table is correct for both force and velocity?

(1)

	force	velocity
☐ **A**	scalar	scalar
☐ **B**	scalar	vector
☐ **C**	vector	scalar
☐ **D**	vector	vector

(Total for question = 1 mark)

Downloaded from www.merit-minds.com

Q2.

A toy car has a mass of 0.10 kg.
The toy car accelerates at 2.0 m/s^2.

Calculate the force producing this acceleration.
State the unit.

Use the equation

$F = m \times a$

(3)

force = ... unit = ...

(Total for question = 3 marks)

Downloaded from www.merit-minds.com

Q3.

(a) Which of these situations can increase the reaction time of a driver?

Put a cross (☒) in the box next to your answer.

(1)

- ☐ **A** an icy road
- ☐ **B** worn tyres on his car
- ☐ **C** stopping for a cup of coffee
- ☐ **D** driving for a long time without taking a break

(b) (i) A car engine produces an average driving force of 1200 N.

The car travels 8.0 m.
Calculate the work done by the force over this distance.

(2)

work done = ... J

(ii) The car has a mass of 1400 kg and travels at a velocity of 25 m/s.
Calculate the kinetic energy of the car.

(3)

kinetic energy = ... J

Downloaded from www.merit-minds.com

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 ☒ .

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)

Downloaded from www.merit-minds.com

Q5.

Figure 5 shows the apparatus a student uses to investigate how the stopping distance of a toy car depends on the type of surface that it is stopping on.

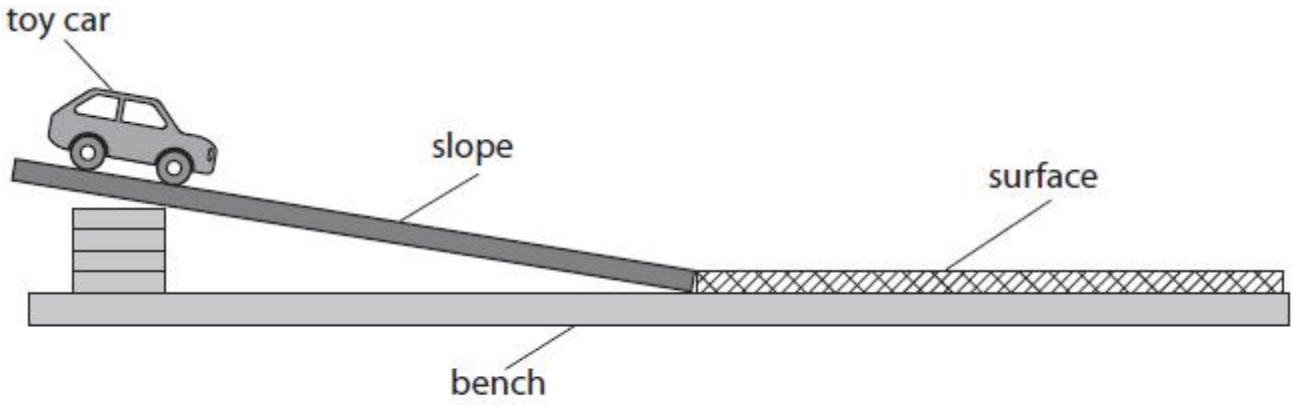

Figure 5

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.

Downloaded from www.merit-minds.com

(1)

.....

.....

(Total for question = 4 marks)

Downloaded from www.merit-minds.com

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 ☒.

The graph in Figure 5 shows how the velocity of a car changes with time.

The car starts from rest and travels along a level, straight road for 50 s.

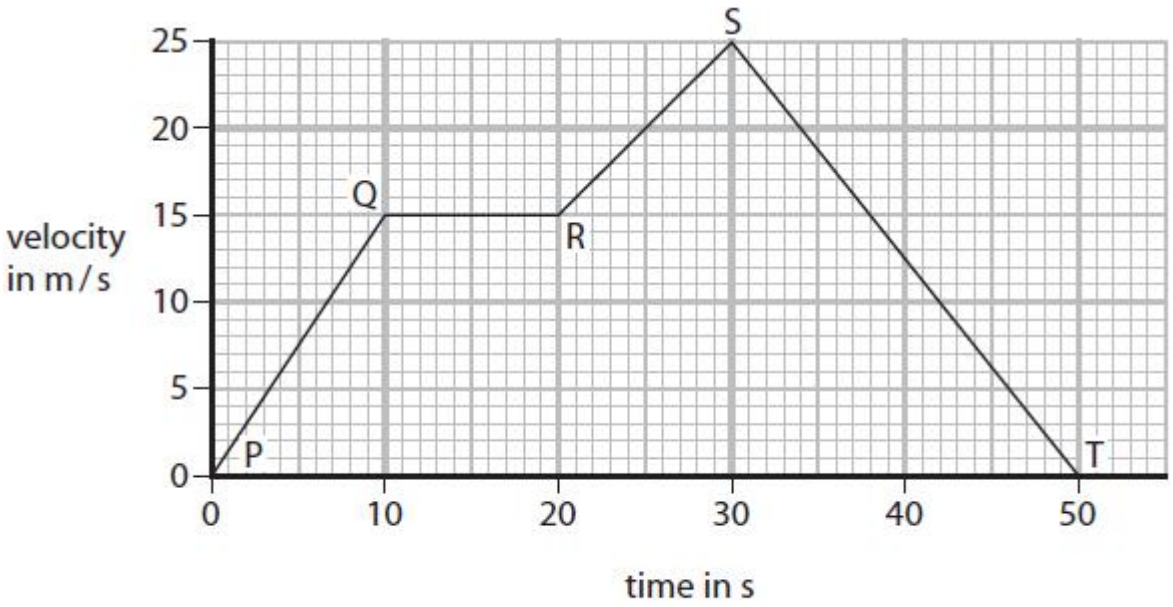

Figure 5

(i) Which part of the graph shows when the car has constant velocity?

(1)

- ☒ **A** PQ
- ☒ **B** QR
- ☒ **C** RS
- ☒ **D** ST

(ii) Which part of the graph shows when the car has the greatest acceleration?

(1)

- ☒ **A** PQ
- ☒ **B** QR
- ☒ **C** RS
- ☒ **D** ST

(iii) Calculate the acceleration of the car in the first 10 s shown on the graph.

(2)

Use the equation

$$\text{acceleration} = \frac{\text{change in velocity}}{\text{time}}$$

acceleration = ... m/s^2

(iv) Calculate the distance the car travels in part QR shown on the velocity / time graph in Figure 5.

Downloaded from www.merit-minds.com

(3)

distance = ... m

(Total for question = 7 marks)

Downloaded from www.merit-minds.com

Q7.

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** $F = m \times a$
- ☐ **D** $F = m \div a$

(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)

Downloaded from www.merit-minds.com