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

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Name of the Student:_____
Max. Marks : 11 Marks **Time : 11 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 ☒.

Figure 5 is a velocity/time graph for a lift moving upwards in a tall building.

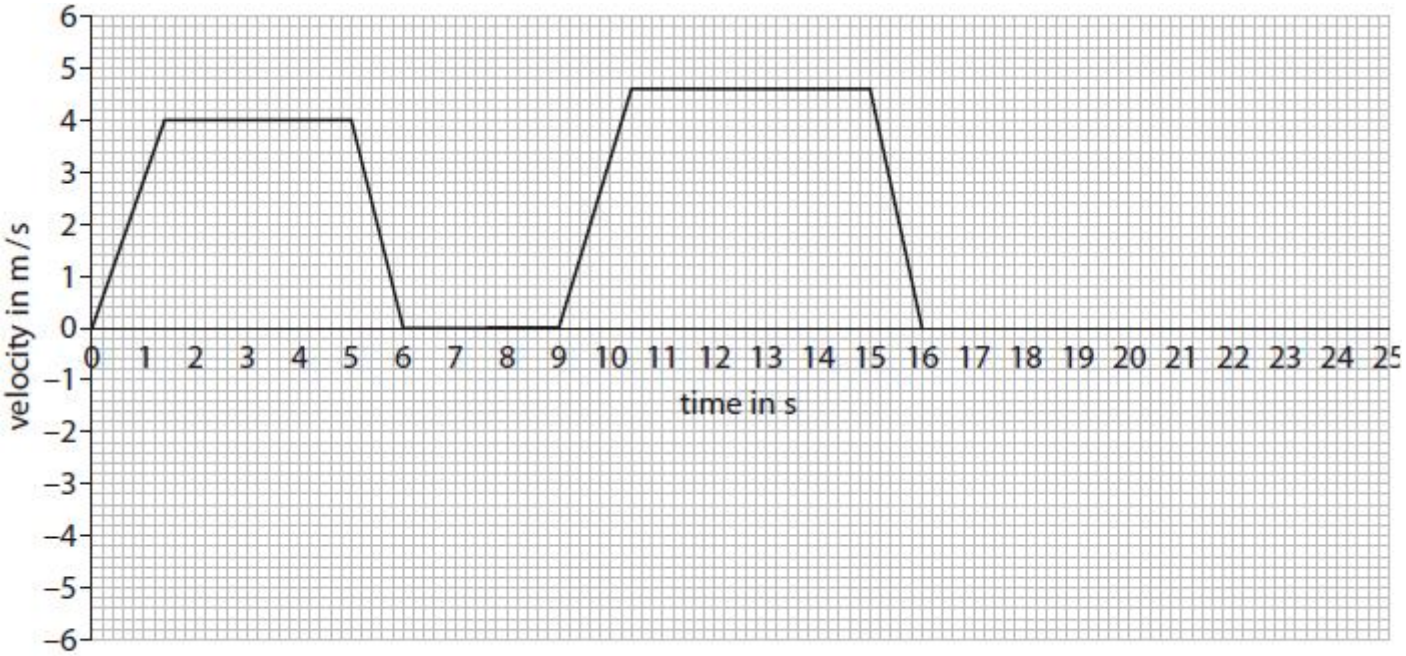

Figure 5

For what length of time is the lift at rest during the first 16 s?

(1)

- ☒ **A** 1.4 s
- ☒ **B** 3.0 s
- ☒ **C** 3.6 s
- ☒ **D** 4.0 s

(Total for question = 1 mark)

Q2.

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 ☒.

Which of these is a scalar quantity?

(1)

- ☐ **A** acceleration
- ☐ **B** distance
- ☐ **C** force
- ☐ **D** weight

(Total for question = 1 mark)

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 ☒.

Which of these is a vector?

(1)

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

(Total for question = 1 mark)

Q4.

Two students try to determine a value for *g*, the acceleration due to gravity.

They measure the time, *t*, for a small steel ball to fall through a height, *h*, from rest.

They measure *t* to be 0.74 s, using a stopwatch.
They measure *h* to be 2.50 m, using a metre rule.

$$g = \frac{2h}{t^2}$$

They record the time *t* for two more drops from the same height.

The three values for time *t* are

0.74 s, 0.69 s, 0.81 s.

Explain **one** way the students could improve their procedure to obtain a more accurate value for *g*.

(2)

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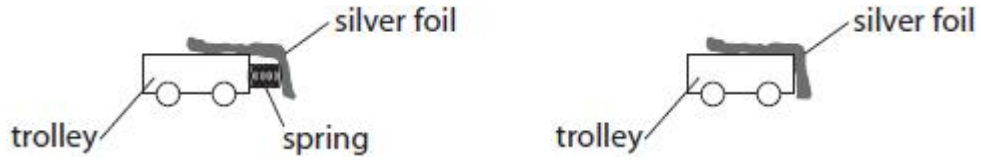
(Total for question = 2 marks)

Q5.

A student investigates the effect of a crumple zone on the force exerted during a collision.

The student has one trolley with a spring at the front and another trolley without a spring.



The student uses the arrangement in Figure 10.

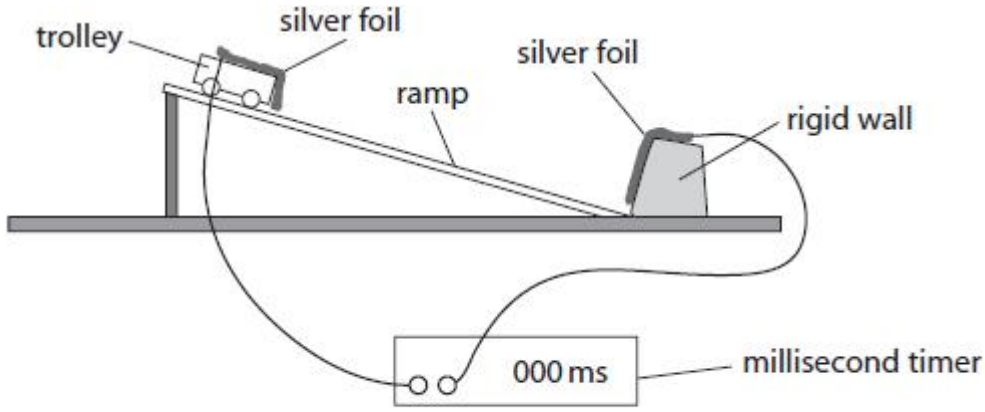


Figure 10

After a trolley is released, it accelerates down a slope and bounces off a rigid wall.

The speed of a trolley can be measured just before a collision with the wall and just after a collision with the wall.

The silver foils are connected to a millisecond timer.

The silver foils make contact with each other during the collision, so the time they are in contact can be read from the millisecond timer.

Explain how the student could investigate the effect of a crumple zone on the average force exerted during the collision.

Your explanation should include:

- how to determine the force (you may wish to refer to an equation from the list of equations)
- how the effect of crumple zones may be shown in the investigation
- precautions that may be necessary to achieve accurate results.

(6)

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(Total for question = 6 marks)