Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic: Forces (High Demand Questions)

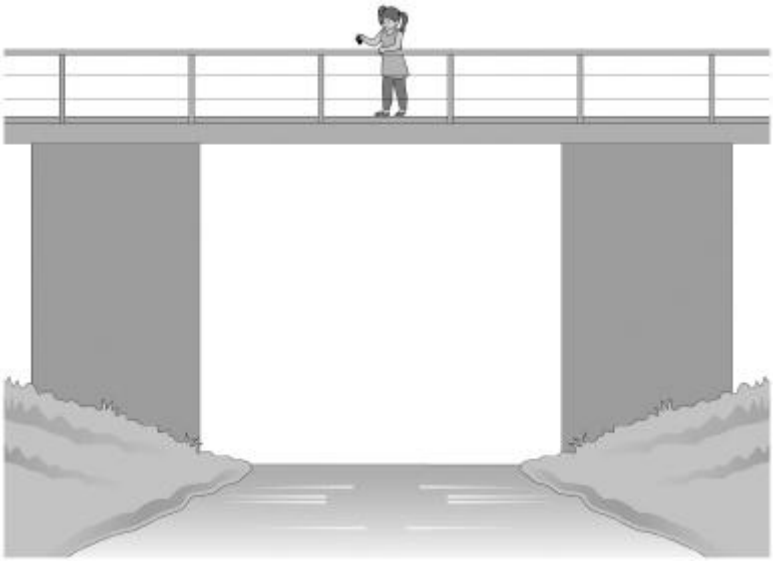
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Name of the Student:_____
Max. Marks : 20 Marks **Time : 20 Minutes**

Q1.

Figure 1 shows a child dropping a stone into water.

Figure 1



(a) When the child drops the stone it passes the child's feet with a velocity of 3.1 m/s.

The child's feet are 6.3 m above the water.

acceleration due to gravity = 9.8 m/s^2

Calculate the velocity of the stone as it hits the water.

Use the Physics Equations Sheet.

Give your answer to 2 significant figures.

_____

_____

_____

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Velocity (2 significant figures) = _____ m/s

(4)

(b) Velocity is a vector.

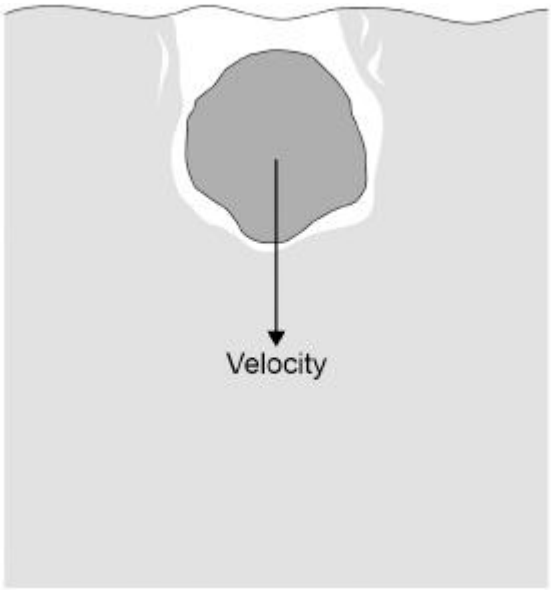
Describe the velocity of the stone as it falls through the air.

Assume there is no air resistance.

(2)

(c) **Figure 2** shows the stone just after it has entered the water.

Figure 2



As the stone moves through the water, the stone slows to a constant velocity.

Explain why.

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_____

_____

_____

(4)

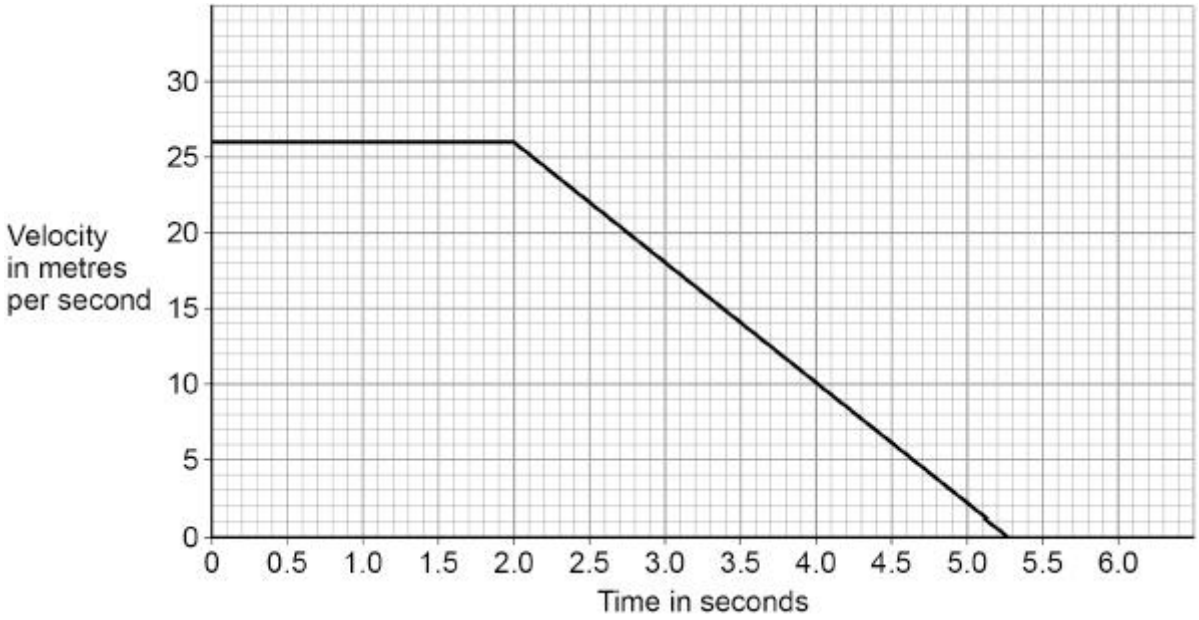
(Total 10 marks)

Q2.

A car contains a device called a black box. The black box records the velocity and acceleration of the car.

The car was travelling at a constant velocity. The driver then reacted to a hazard.

The figure below shows the velocity–time graph for the car.



(a) Determine the deceleration of the car.

Give the unit.

_____

_____

_____

_____

_____

Deceleration = _____ Unit _____

(3)

(b) The driver of the car has a reaction time of 0.75 s.

Determine the stopping distance of the car.

Use the Physics Equations Sheet.

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Use the figure above.

Stopping distance = _____ m

(5)

(c) If the black box records large decelerations, it identifies that the driving may be dangerous.

Explain why large decelerations may be dangerous.

(2)

(Total 10 marks)

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