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

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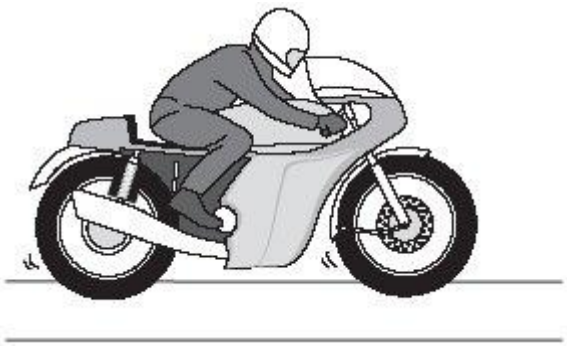
Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Q1.

The diagram shows a motorbike of mass 300 kg being ridden along a straight road.



The rider sees a traffic queue ahead. He applies the brakes and reduces the speed of the motorbike from 18 m/s to 3 m/s.

(a) Calculate the kinetic energy lost by the motorbike.

Show clearly how you work out your answer.

_____

_____

_____

_____

Kinetic energy lost = _____ J

(2)

(b) (i) How much work is done on the motorbike by the braking force?

_____

(1)

(ii) What happens to the kinetic energy lost by the motorbike?

_____

(1)

(Total 4 marks)

Q2.

A car is driven along a straight road. The graph shows how the velocity of the car changes during

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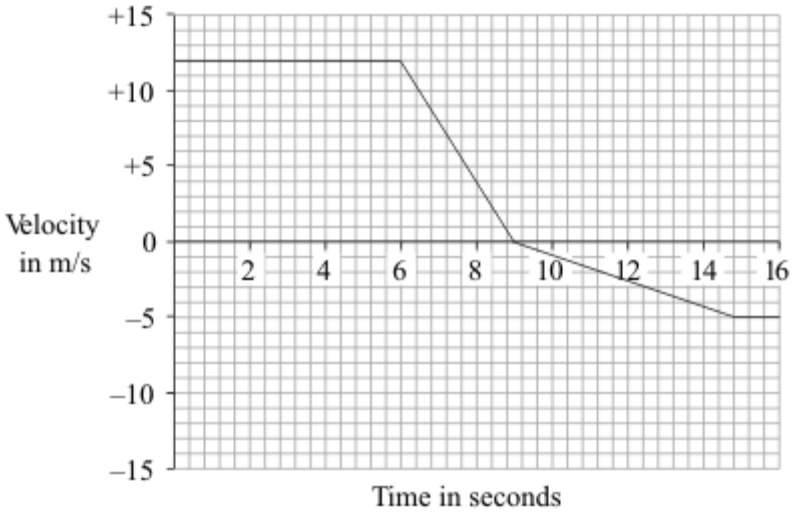
part of the journey.



(a) Use the graph to calculate the deceleration of the car between 6 and 9 seconds.

Show clearly how you work out your answer and give the unit.

_____

_____

_____

Deceleration = _____

(3)

(b) At what time did the car change direction?

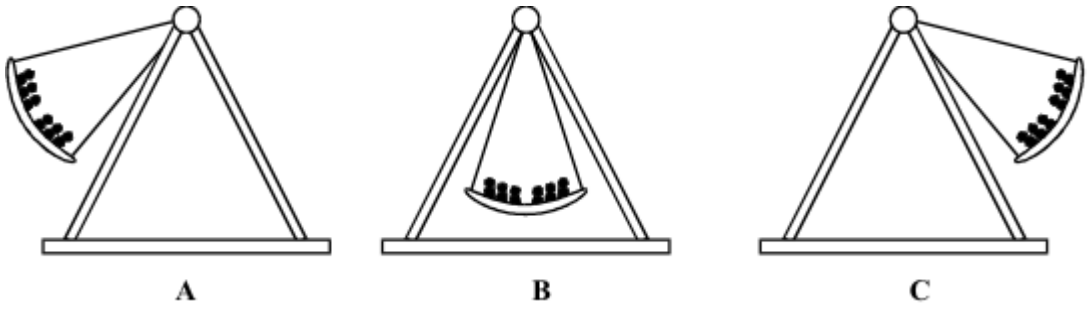
_____ seconds

(1)

(Total 4 marks)

Q3.

The Boat is a theme park ride. The Boat swings backwards and forwards. The diagrams show the Boat at the top and bottom of its swing.



(a) As the Boat swings from its position in **A** to its position in **B**, a child on the ride gains 5070 joules of kinetic energy. The child has a mass of 60 kg and is sitting at the centre.

(i) Write down the equation which links kinetic energy, mass and speed.

_____

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_____

(1)

(ii) Calculate the speed of the child as the Boat passes through **B**. Show clearly how you work out your final answer.

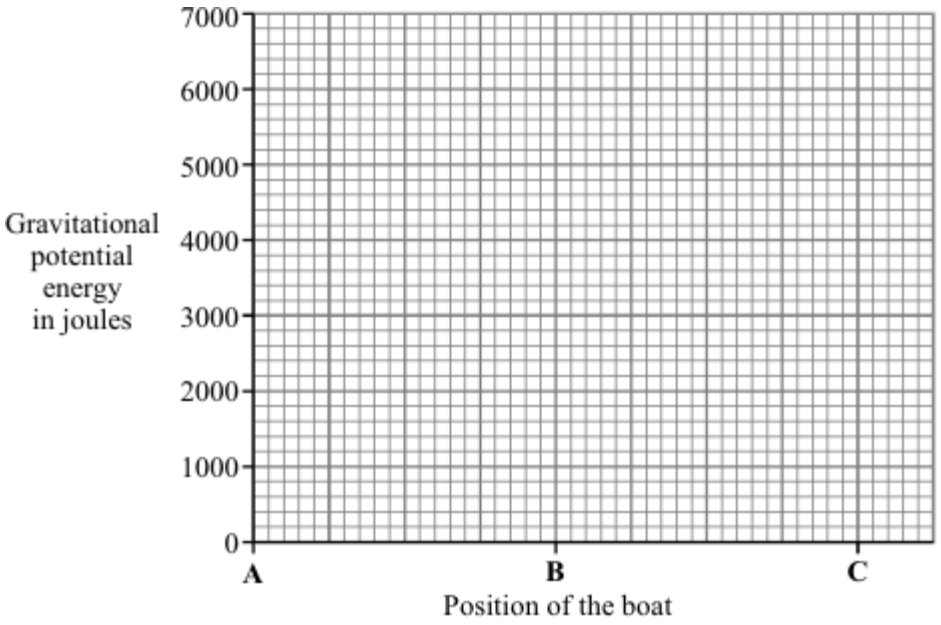
_____

_____

Speed = _____ m/s

(2)

(b) Sketch a graph to show how the gravitational potential energy of the child changes as the Boat swings from **A** to **B** to **C**. The axes have been drawn for you.



(2)

(Total 5 marks)

Q4.

The distance-time graph represents the motion of a car during a race.

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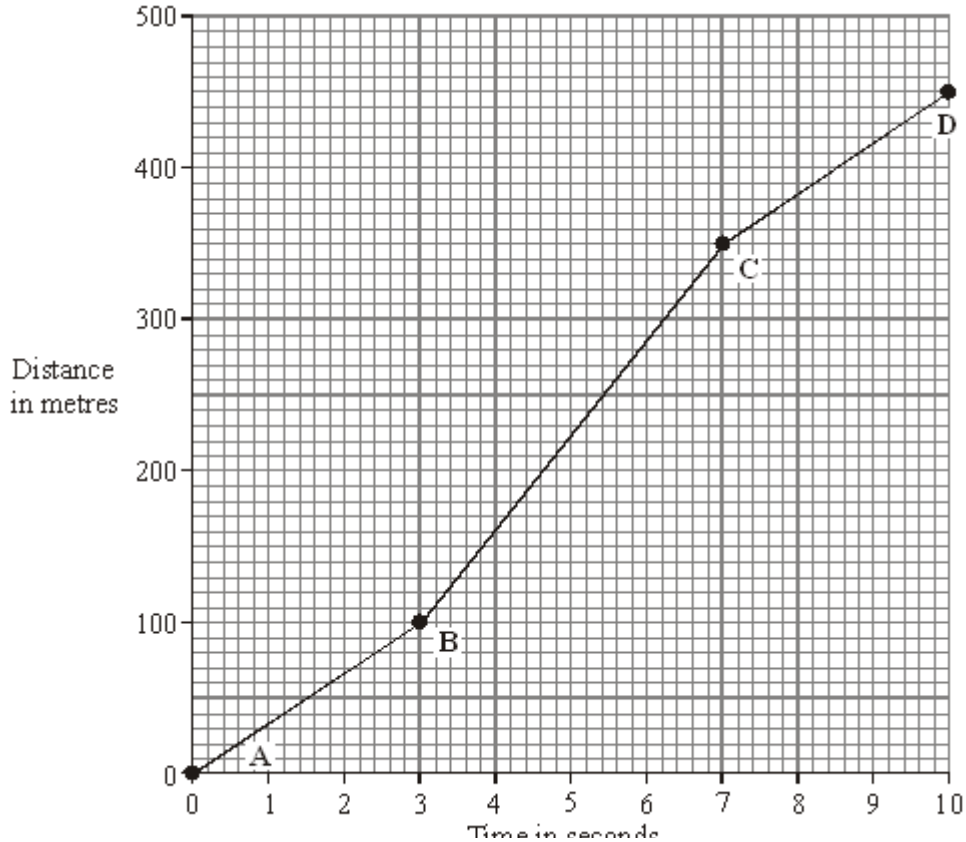

(a) Describe the motion of the car between point **A** and point **D**. You should not carry out any calculations.

To gain full marks in this question you should write your ideas in good English. Put them into a sensible order and use the correct scientific words.

_____

_____

_____

_____

_____

(3)

(b) Calculate the gradient of the graph between point **B** and point **C**. Show clearly how you get your answer.

_____

_____

_____

gradient = _____

(3)

(Total 6 marks)

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