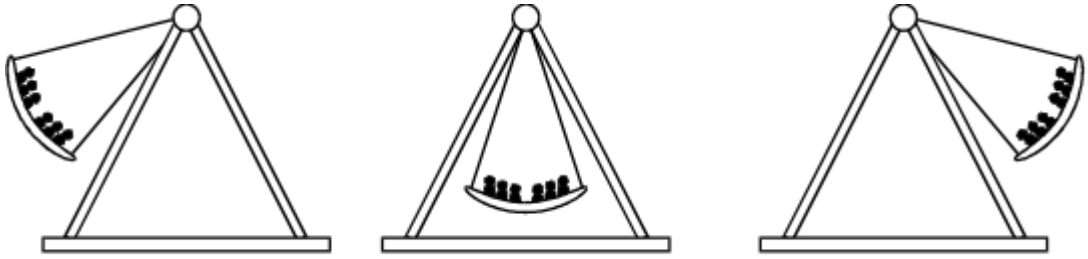
Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic: GCSE Triple Science_Forces (High Demand Questions)

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

Q1.

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.

_____

_____

(1)

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

_____

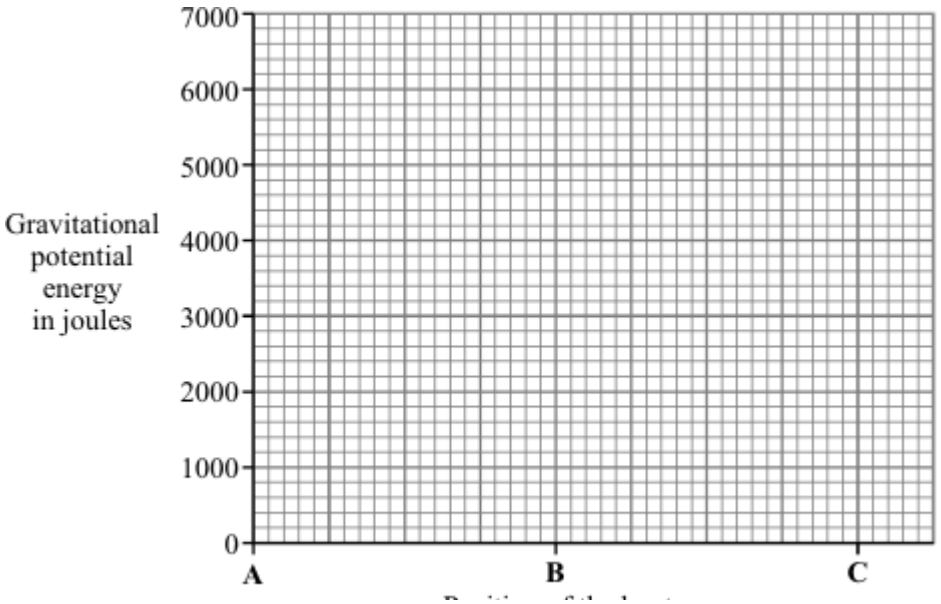
_____

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.

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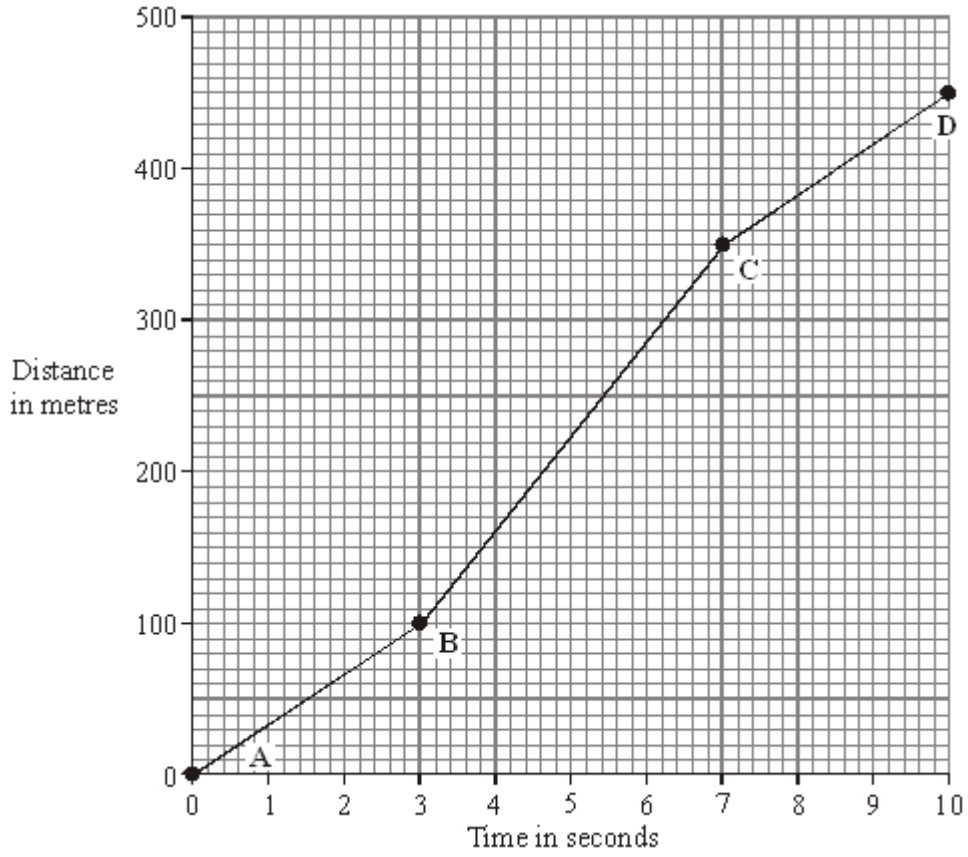


(2)

(Total 5 marks)

Q2.

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



(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.

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(3)

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

_____

_____

_____

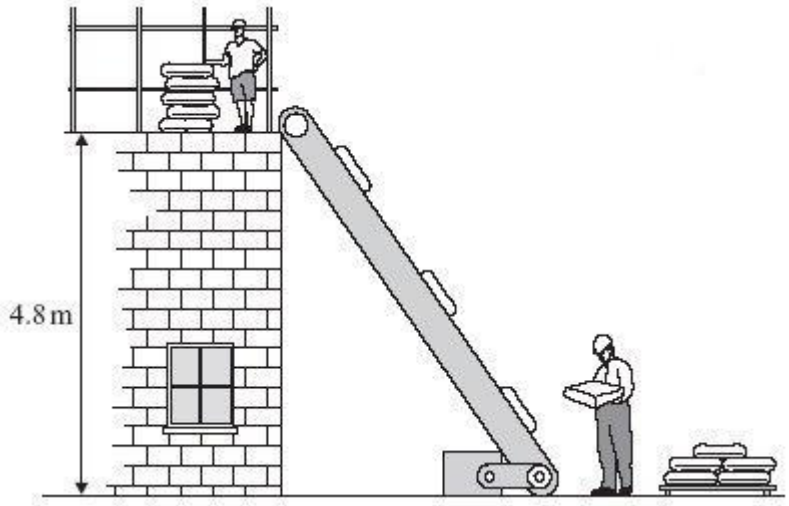
gradient = _____

(3)

(Total 6 marks)

Q3.

A machine is used to lift materials on a building site.



(a) (i) Write down the equation that links change in gravitational potential energy, change in vertical height and weight.

_____

(1)

(ii) A 25 kg bag of cement is lifted from the ground to the top of the building. Calculate the gain in the gravitational potential energy of the bag of cement.

(On Earth a 1 kg mass has a weight of 10 N.)

_____

_____

Change in gravitational potential energy = _____ joules

(2)

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(b) The conveyor belt delivers six bags of cement each minute to the top of the building.

(i) Calculate the useful energy transferred by the machine each second.

_____

_____

_____

Useful energy transfer each second = _____ J

(1)

(ii) The machine is 40% efficient.
Use the following equation to calculate the total energy supplied to the machine each second. Show how you work out your answer.

$$\text{Efficiency} = \frac{\text{useful energy transferred by device}}{\text{total energy supplied to device}}$$

_____

_____

Total energy supplied each second = _____ J

(2)

(Total 6 marks)

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