

SECTION B

Examiner
only**Task B4** (45 minutes)

You are going to use a pendulum to determine a value for the acceleration due to gravity, g .

A pendulum has been set up for you. Pull the mass to one side and release it. The pendulum swings backwards and forwards in an oscillating motion.

- (a) (i) Clearly describe the energy changes when the pendulum is in motion. [2]

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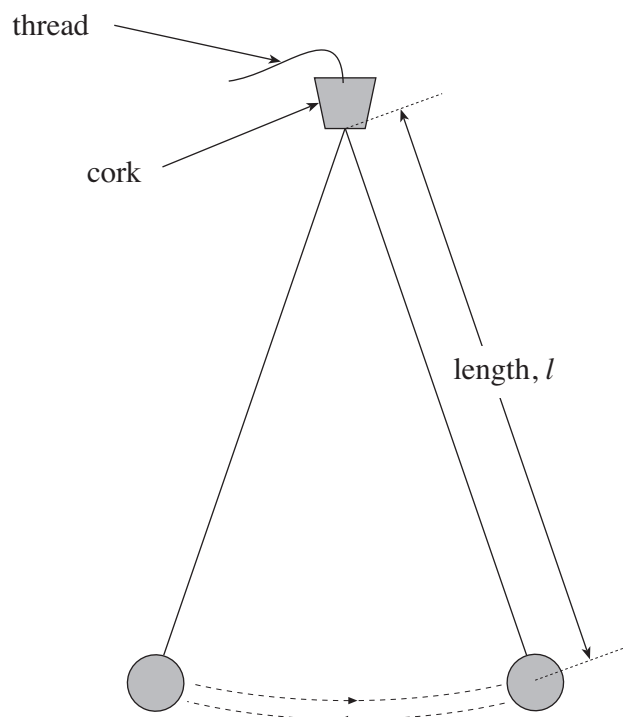
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- (ii) Explain why the pendulum eventually comes to rest. [1]

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- (b) The period T of the pendulum is the time taken for one oscillation. This is the time taken for the pendulum to swing from one side to the other **and back again** as shown in the following diagram.



The pendulum has been set up for you with a length of 0.200 m.

Take a series of measurements for the time taken for 10 oscillations for 5 different lengths in the range 0.200 m to 1.200 m.

The length can be changed by adjusting the thread through the cork. To set the pendulum in oscillation you should pull the mass to the side a small distance.