













(ii) A homeowner is thinking about replacing his filament bulbs with LED bulbs.

A 12 W LED bulb gives the same light output as a 60 W filament bulb.

Suggest reasons why the homeowner is likely to choose LED bulbs.

Use the information given in the table.

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(2)

(iii) State **one** factor, other than efficiency, that is important when considering the choice of a bulb for lighting in the home.

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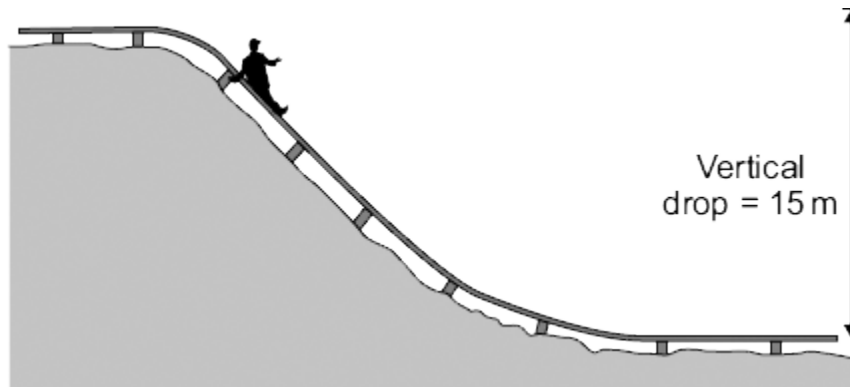
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(1)

(Total 10 marks)

5.

The miners working in a salt mine use smooth wooden slides to move quickly from one level to another.



- (a) A miner of mass 90 kg travels down the slide.

Calculate the change in gravitational potential energy of the miner when he moves 15 m vertically downwards.

gravitational field strength = 10 N/kg

Show clearly how you work out your answer.

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Change in gravitational potential energy = \_\_\_\_\_ J

(2)

- (b) Calculate the **maximum** possible speed that the miner could reach at the bottom of the slide.

Show clearly how you work out your answer.

Give your answer to an appropriate number of significant figures.

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Maximum possible speed = \_\_\_\_\_ m/s

(3)

- (c) The speed of the miner at the bottom of the slide is much less than the calculated maximum possible speed.

Explain why.

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(3)

(Total 8 marks)