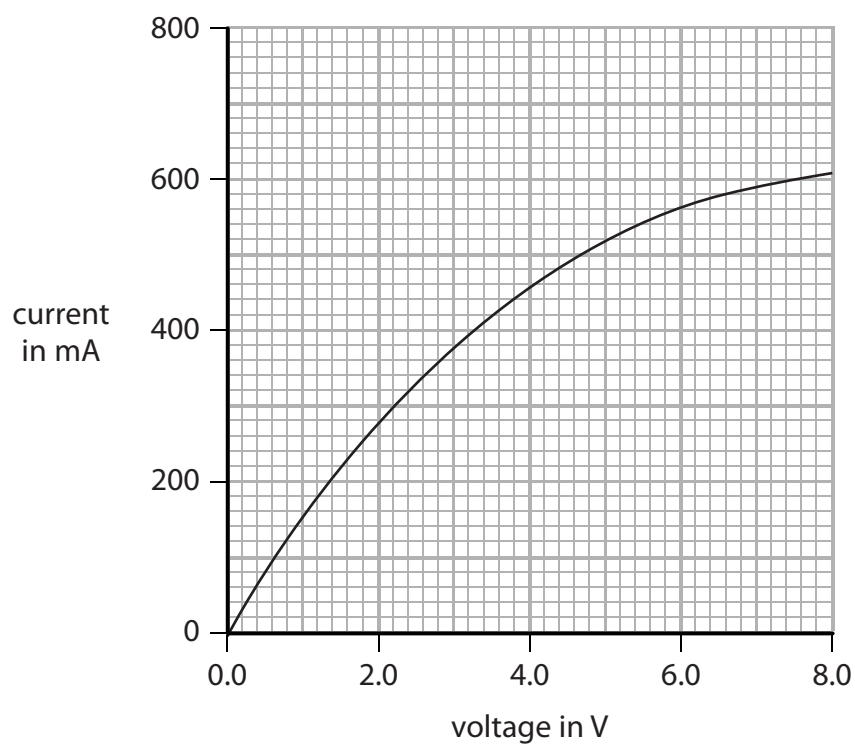


**12** The graph shows how the current in a filament lamp varies as the voltage across it is changed.



- (a) Draw a circuit diagram to show a circuit that could be used to make the measurements required to plot this graph.

(4)

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(b) The resistance of the filament lamp changes as the voltage is increased.

(i) Determine how the resistance of the filament lamp changes as the voltage is increased.

You should use data from the graph in your answer.

(4)

(ii) Explain why the resistance changes as the voltage is increased.

(3)

(c) Draw a line on the graph to show how the current varies with voltage for a different filament lamp with a higher power rating.

(1)

**(Total for Question 12 = 12 marks)**

**TOTAL FOR PAPER = 120 MARKS**

