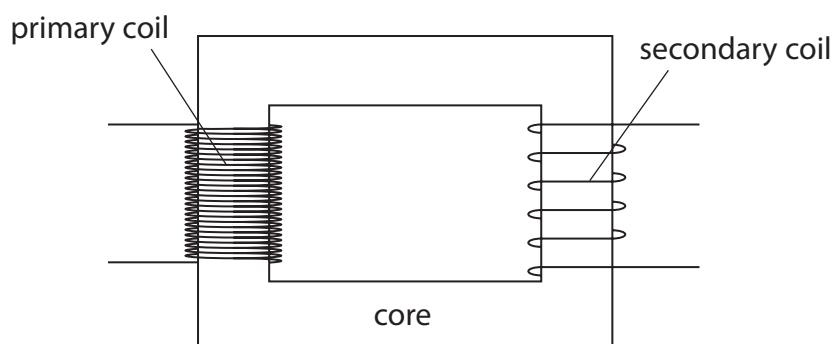


6 A student investigates transformers.



(b) The student investigates the effect of changing the number of turns in the secondary coil.

This is his method.

- apply a constant maximum voltage to a primary coil with 1200 turns
- use a secondary coil with 100 turns
- measure the output voltage of the transformer
- replace the secondary coil with one that has 200 turns
- measure the output voltage again

The student repeats this method using different numbers of turns in the secondary coil.

(i) Suggest how the student could improve the reliability of his investigation.

(1)

(ii) These are the student's results.

number of turns = 100, output voltage = 1.3 V	number of turns = 400, output voltage = 5.0 V
number of turns = 200, output voltage = 2.5 V	number of turns = 500, output voltage = 6.3 V
number of turns = 300, output voltage = 3.8 V	number of turns = 600, output voltage = 7.5 V

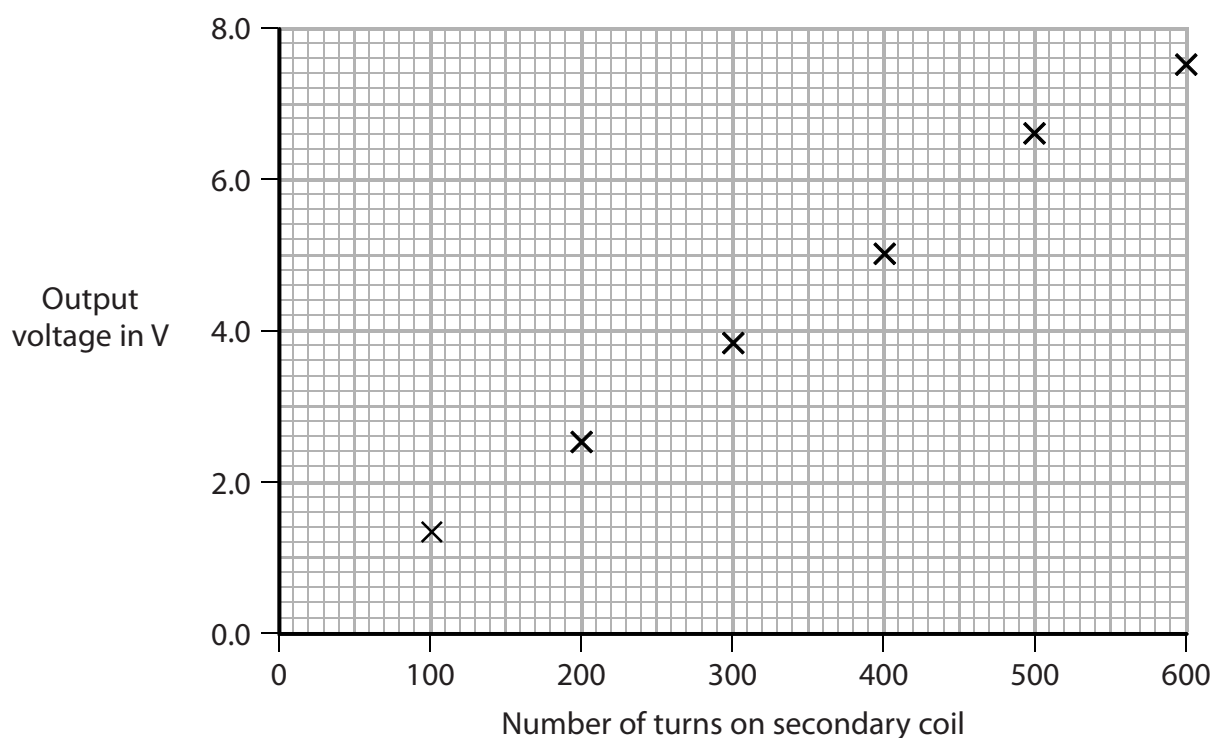
Draw a table of these results.

(3)



(iii) Suggest how the student could improve the precision of his voltage measurement. (1)

(c) The student plots this graph to show the results of his investigation.



(i) The student plots one of his results incorrectly.

Draw a circle around the incorrectly plotted result on the graph.

(1)

(ii) Draw the line of best fit.

(1)

(iii) Describe the relationship shown by the graph.

(2)

(Total for Question 6 = 14 marks)



P 6 0 1 8 5 A 0 1 9 2 8

7 A student investigates how the surface material of a ramp affects the average speed of a block sliding down the ramp.

(a) Design a suitable method for the student's investigation.

Your answer should include

- the measuring equipment needed
- details of the independent, dependent and control variables
- how the average speed will be determined

You may include a diagram to help your answer.

(6)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(b) Justify why the student should display their results as a bar chart.

(1)

(Total for Question 7 = 7 marks)

