

Name of the Student: _____

Max. Marks : 16 Marks

Time : 16 Minutes

Q1.

A student measures the strength of the magnetic field at several distances from the wire in Figure 4. Figure 5 shows most of the student's results.

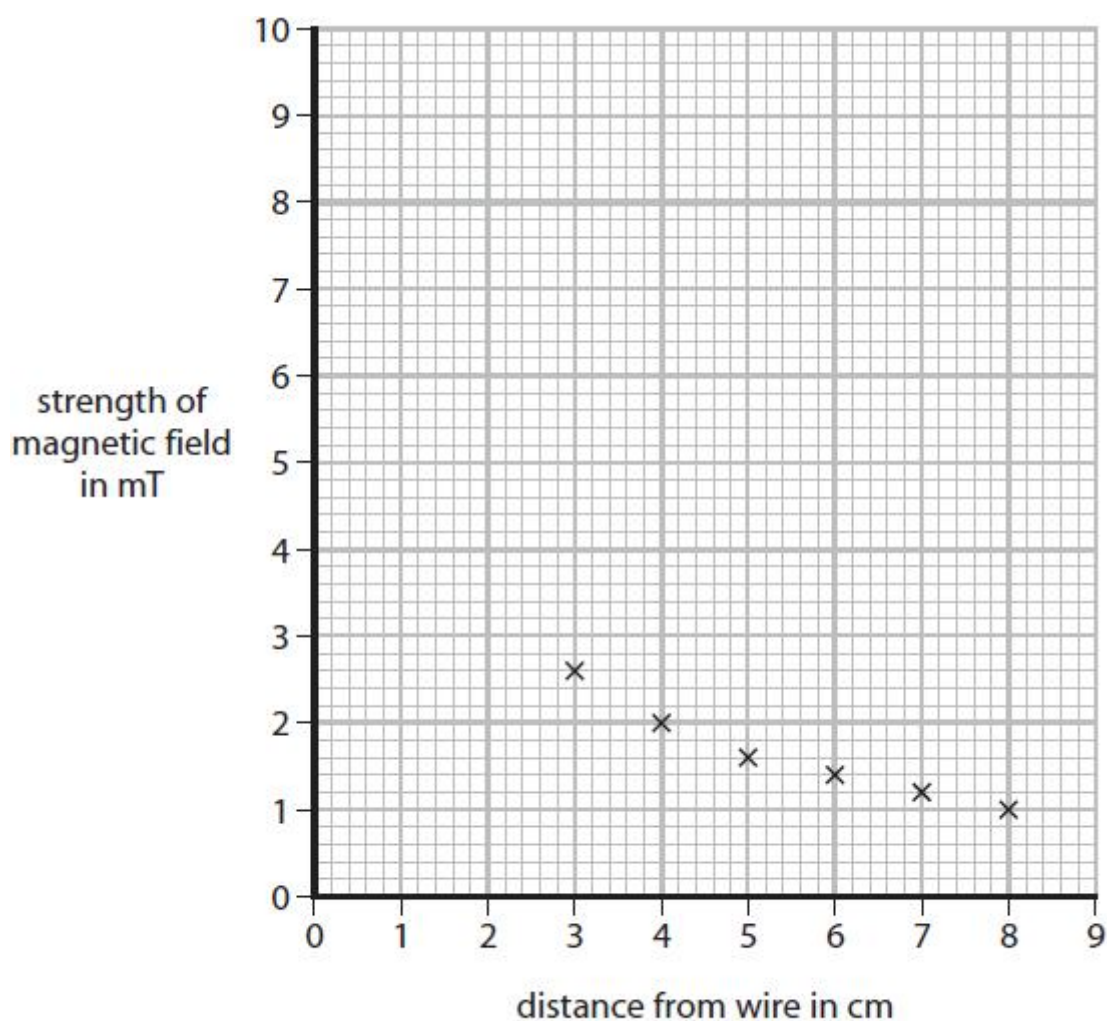


Figure 5

Figure 6 shows two extra sets of results.
mT is a unit of strength of a magnetic field.

distance from wire in cm	strength of magnetic field in mT
1.0	8.1
2.0	3.9

Figure 6

(i) Plot the two extra points on Figure 5.

(2)

(ii) Draw a best fit curve on the graph in Figure 5.

(1)

(iii) Use the graph in Figure 5 to calculate the change in strength of magnetic field when the distance from the wire changes from 4 cm to 8 cm.

(2)

change in strength of magnetic field = ... mT

(iv) The distance from the wire affects the strength of the magnetic field.

State **one** other factor that affects the strength of the magnetic field.

(1)

.....

(Total for question = 6 marks)

Q2.

A student uses iron filings to show the pattern of a magnetic field around a bar magnet.

Figure 2 shows the pattern the student produced.

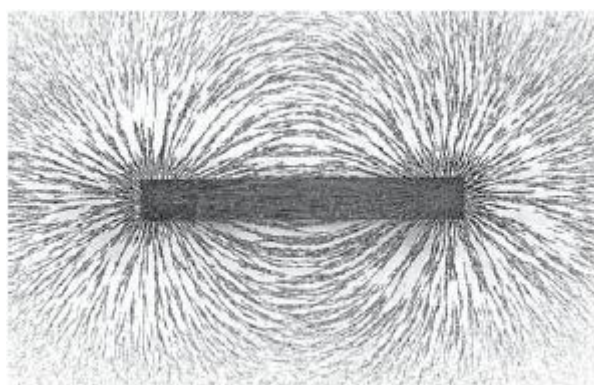


Figure 2

(i) Describe how you can tell from Figure 2 where the magnetic field is strongest.

(2)

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(ii) The bar magnet is placed on a sheet of paper. Describe how the student could plot the shape and show the direction of the magnetic field around the magnet.

(3)

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(Total for question = 5 marks)

Q3.

Describe how you could show that the Earth has a magnetic field.

(2)

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(Total for question = 2 marks)

Q4.

This question is about magnets and magnetism.

Figure 4 shows the magnetic field around a wire carrying a current.

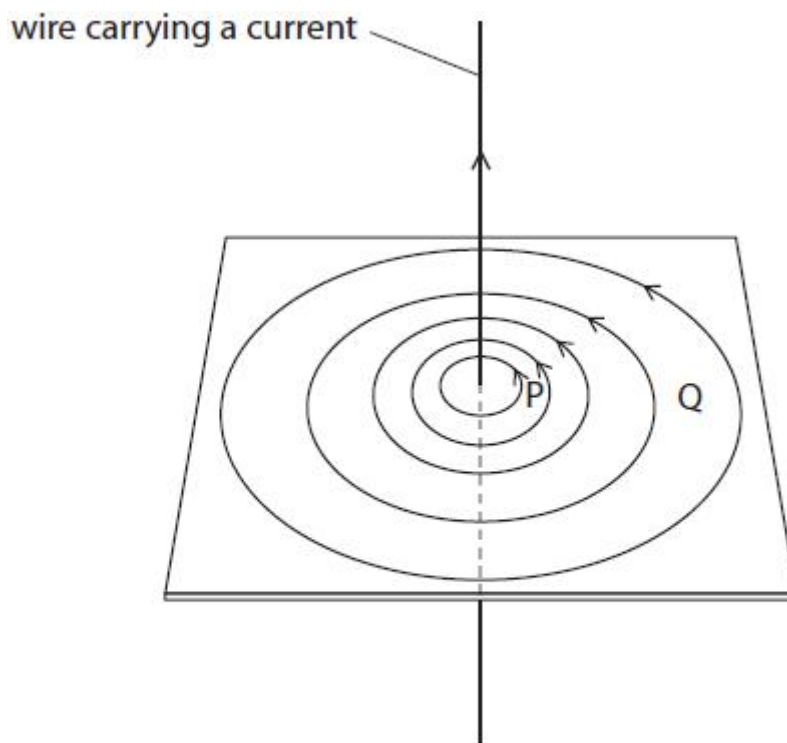


Figure 4

- (i) State how you can tell from Figure 4 that the strength of the field is greater at P than at Q.

(1)

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- (ii) The magnetic field strength is measured at P for different values of current in the wire.

The results of this investigation are shown in Figure 5.

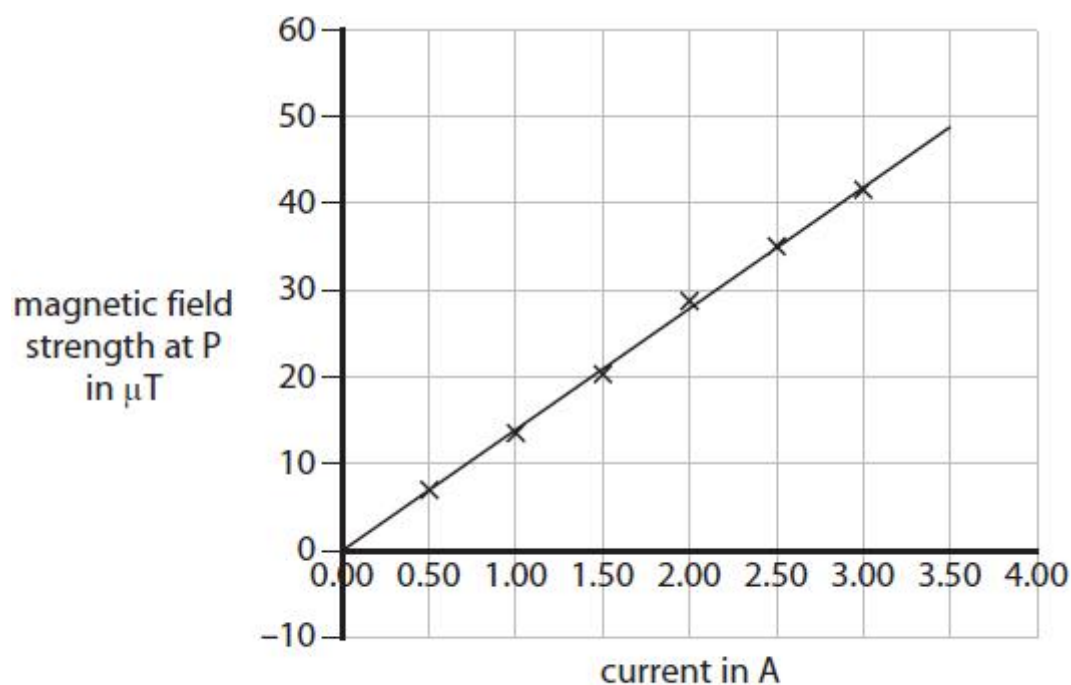


Figure 5

Describe the relationship between magnetic field strength and current.

(2)

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(Total for question = 3 marks)