

1 (a) Three of the following are magnetic materials.

Which of these is **NOT** a magnetic material?

(1)

- A cobalt
- B copper
- C iron
- D nickel

(b) Figure 1 shows a magnet, P, hanging from a support.

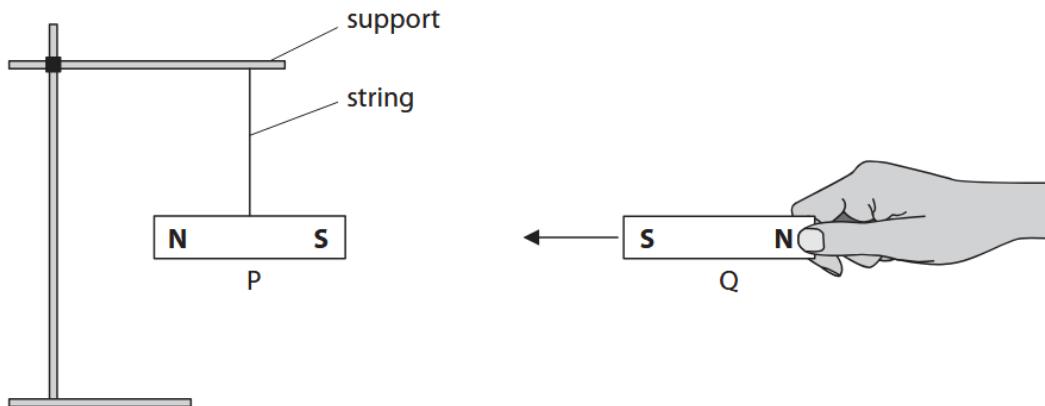


Figure 1

Explain what happens to magnet P when another magnet, Q, is brought towards it as shown.

(2)

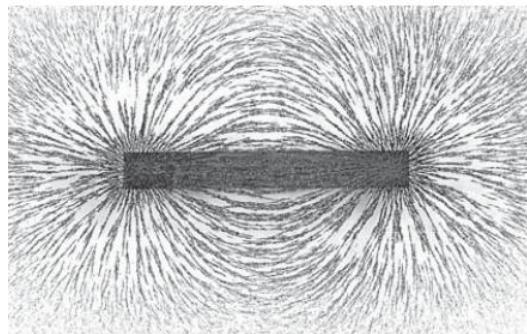
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- (c) A student uses iron filings to show the pattern of a magnetic field around a bar magnet.

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 1 = 8 marks)**

<b>Question number</b>	<b>Answer</b>	<b>Mark</b>
<b>1 (a)</b>	<b>B</b> copper	<b>(1)</b>

<b>Question number</b>	<b>Answer</b>	<b>Mark</b>
<b>1 (b)</b>	An answer that provides a description by making reference to: <ul style="list-style-type: none"><li>• (P) moves / spins (1)</li><li>• (the two S-poles) repel / N(-pole) and S(-pole) attract (1)</li></ul>	<b>(2)</b>

<b>Question number</b>	<b>Answer</b>	<b>Additional guidance</b>	<b>Mark</b>
<b>1 (c)(i)</b>	An answer that provides a description by making reference to: <ul style="list-style-type: none"><li>• concentration/density (of iron filings) (1)</li><li>• greatest at strongest field (1)</li></ul>	(filings) close together / bunched up	<b>(2)</b>

<b>Question number</b>	<b>Answer</b>	<b>Mark</b>
<b>1 (c)(ii)</b>	An answer that combines the following points to provide a logical description of the method: <ul style="list-style-type: none"><li>• use of (plotting) compass(es) (1)</li><li>• (place) at various different points (around the magnet) (1)</li><li>• the direction is the way the compass points (1)</li></ul>	<b>(3)</b>