

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.

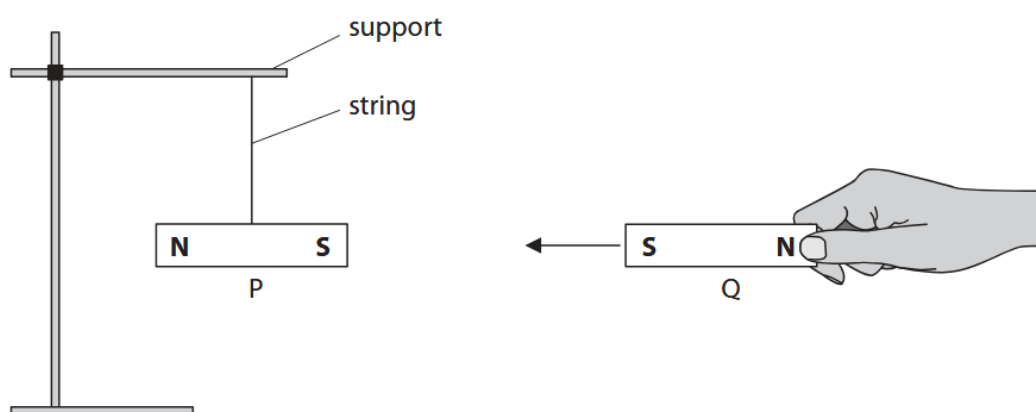


Figure 1

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.

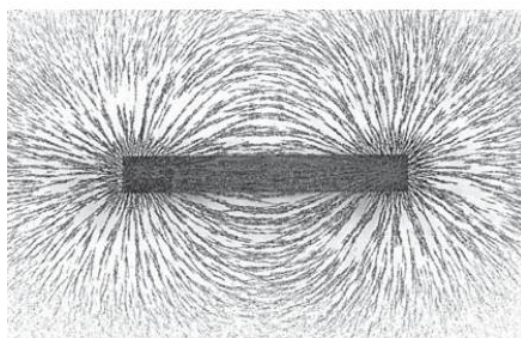


Figure 2

- (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)

Question number	Answer	Mark
1 (a)	B copper	(1)

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

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

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