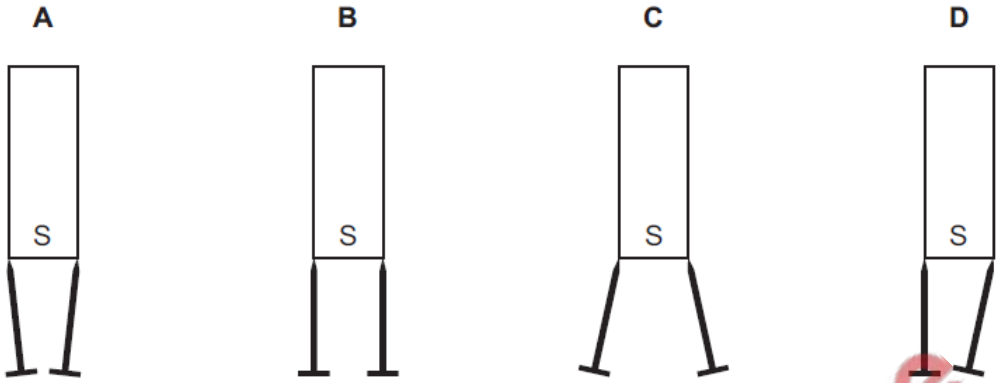
Magnetism – 2020 IGCSE 0625

1. Nov/2020/Paper_11/No.27

Two soft-iron pins are suspended from the S pole of a bar magnet.

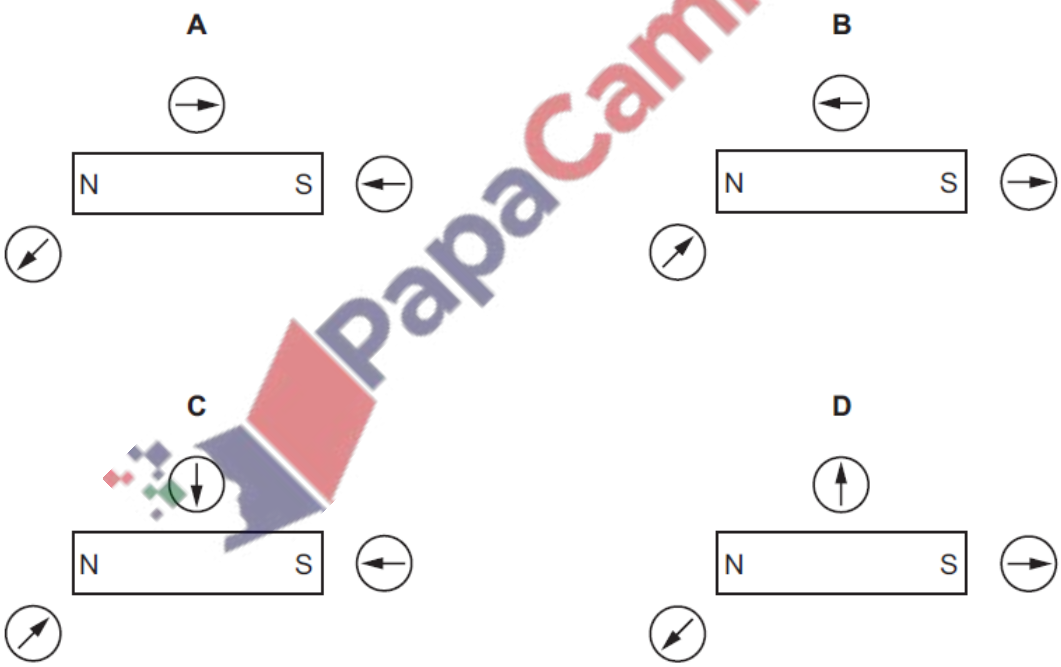
Which diagram shows how the pins are deflected?



2. Nov/2020/Paper_11/No.28

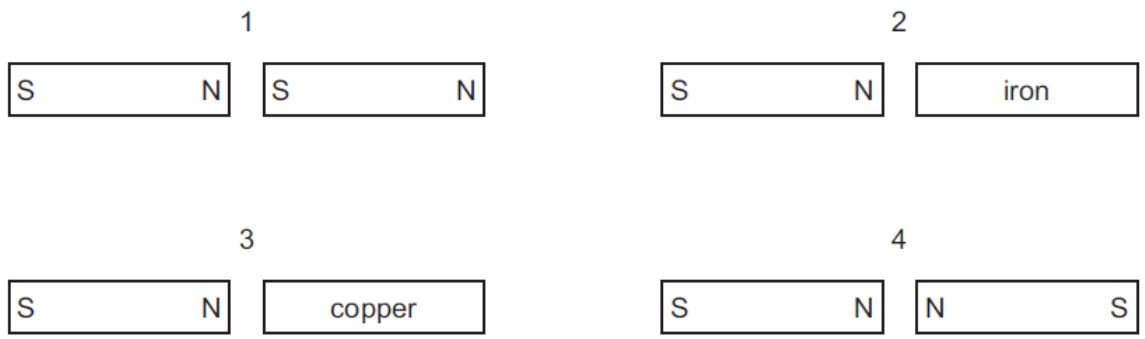
A student uses three small plotting compasses to investigate the magnetic field around a bar magnet.

Which diagram shows the directions in which the compass needles point?



3. Nov/2020/Paper_12/No.27

A student sets up four experiments using bar magnets and other metal objects. The N and S poles of the bar magnets are labelled N and S.



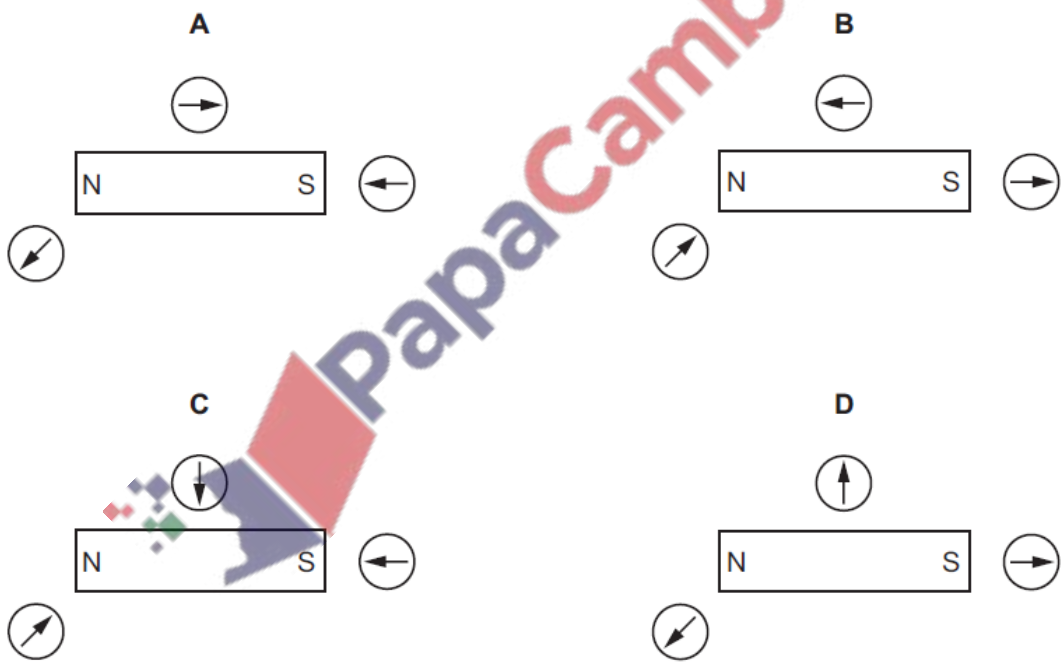
Which pairs attract each other?

A 1 and 2 **B** 1 and 3 **C** 2 and 4 **D** 3 and 4

4. Nov/2020/Paper_12/No.28

A student uses three small plotting compasses to investigate the magnetic field around a bar magnet.

Which diagram shows the directions in which the compass needles point?



5. Nov/2020/Paper_13/No.27

Diagrams 1, 2 and 3 show an experiment to compare two magnets 1 and 2.

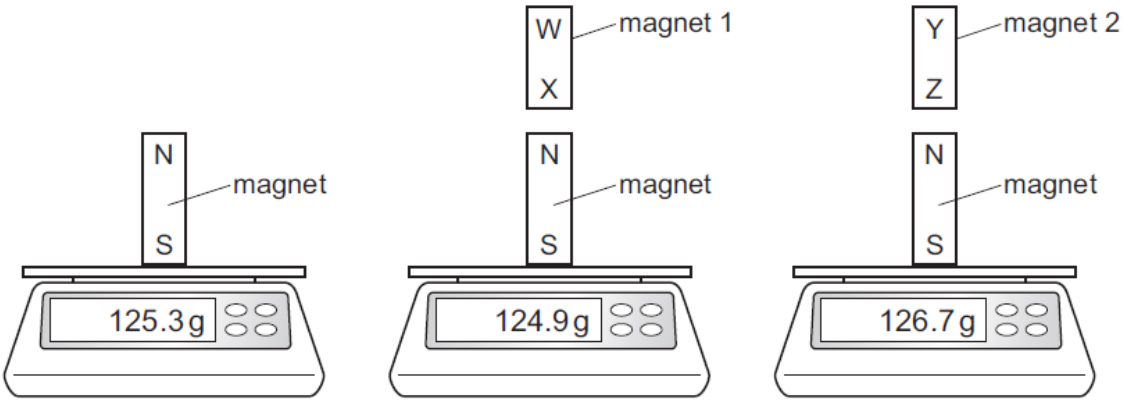


diagram 1 diagram 2 diagram 3

Which row explains the readings on the balances?

	polarity of magnet 1	polarity of magnet 2
A	X is an N pole	Z is an N pole
B	X is an N pole	Z is an S pole
C	X is an S pole	Z is an N pole
D	X is an S pole	Z is an S pole

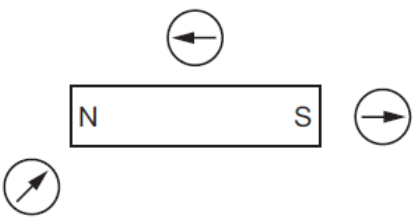
6. Nov/2020/Paper_13/No.28

A student uses three small plotting compasses to investigate the magnetic field around a bar magnet.

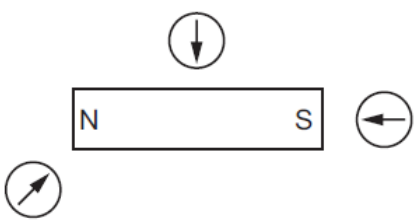
Which diagram shows the directions in which the compass needles point?

A

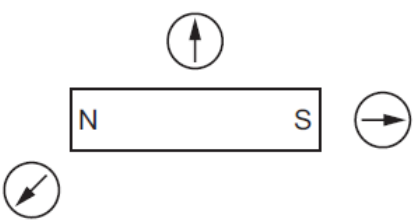
B



C



D



7. Nov/2020/Paper_21/No.27

A piece of steel is slightly magnetised. It is hit several times with a hammer.

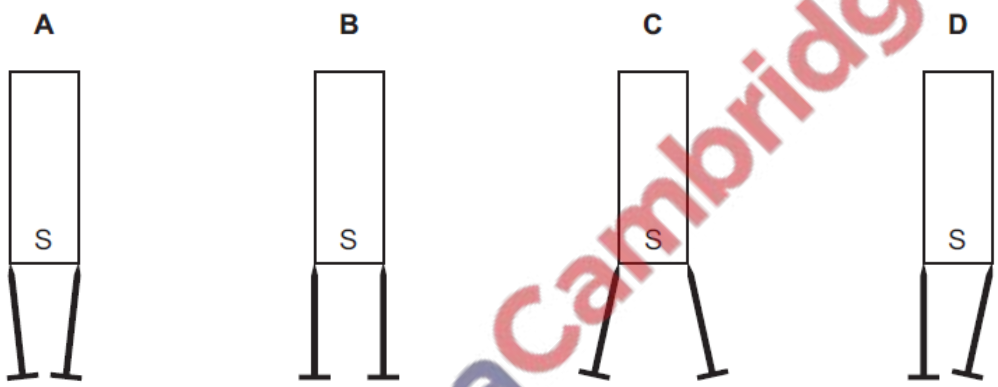
What effect will this have on the steel?

	the steel is parallel to a strong magnetic field	the steel is at right-angles to a weak magnetic field
A	it becomes magnetised more strongly	it becomes magnetised more strongly
B	it becomes magnetised more strongly	it loses its magnetism
C	it loses its magnetism	it becomes magnetised more strongly
D	it loses its magnetism	it loses its magnetism

8. Nov/2020/Paper_21/No.28

Two soft-iron pins are suspended from the S pole of a bar magnet.

Which diagram shows how the pins are deflected?



9. Nov/2020/Paper_22/No.27

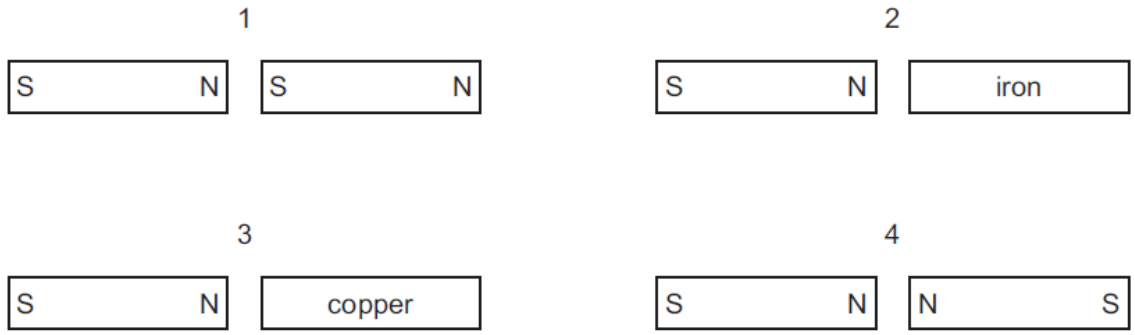
A piece of steel is slightly magnetised. It is hit several times with a hammer.

What effect will this have on the steel?

	the steel is parallel to a strong magnetic field	the steel is at right-angles to a weak magnetic field
A	it becomes magnetised more strongly	it becomes magnetised more strongly
B	it becomes magnetised more strongly	it loses its magnetism
C	it loses its magnetism	it becomes magnetised more strongly
D	it loses its magnetism	it loses its magnetism

10. Nov/2020/Paper_22/No.28

A student sets up four experiments using bar magnets and other metal objects. The N and S poles of the bar magnets are labelled N and S.



Which pairs attract each other?

A 1 and 2 **B** 1 and 3 **C** 2 and 4 **D** 3 and 4

11. Nov/2020/Paper_23/No.28

A piece of steel is slightly magnetised. It is hit several times with a hammer.

What effect will this have on the steel?

	the steel is parallel to a strong magnetic field	the steel is at right-angles to a weak magnetic field
A	it becomes magnetised more strongly	it becomes magnetised more strongly
B	it becomes magnetised more strongly	it loses its magnetism
C	it loses its magnetism	it becomes magnetised more strongly
D	it loses its magnetism	it loses its magnetism

12. Nov/2020/Paper_31/No.9

A student has a permanent bar magnet and two metal bars, as shown in Fig. 9.1.

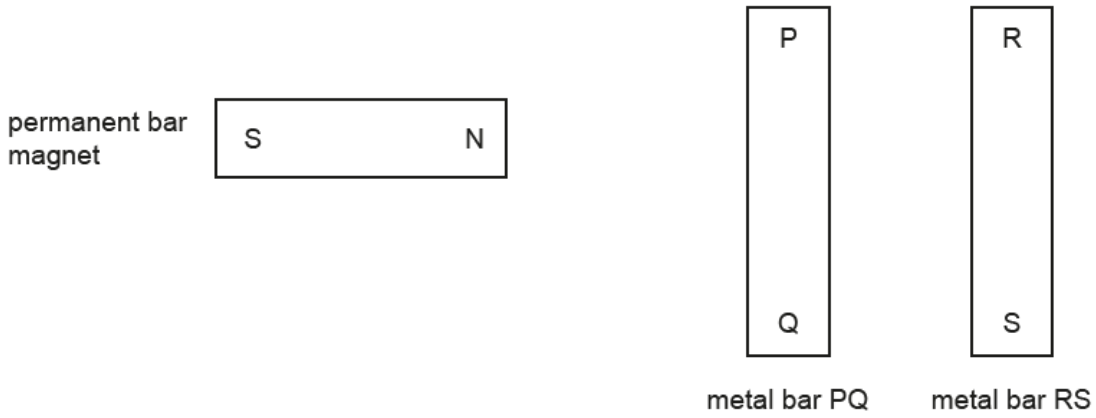


Fig. 9.1

The student tests bar PQ and bar RS separately. He holds the N pole of the permanent bar magnet close to each end of each metal bar. Table 9.1 shows the results of the tests.

Table 9.1

end of metal bar	result of test with N pole
P	attracted
Q	repelled
R	attracted
S	attracted

Deduce whether each metal bar is a magnet, an unmagnetised magnetic material or a non-magnetic material.

Give a reason for each of your answers.

1. metal bar PQ .....

.....

.....

2. metal bar RS .....

.....

.....

[4]

[Total: 4]

13. Nov/2020/Paper_32/No.9

A student tests whether a bar magnet affects three different materials.

Fig. 9.1 shows the bar magnet and a sample of each material A, B and C.

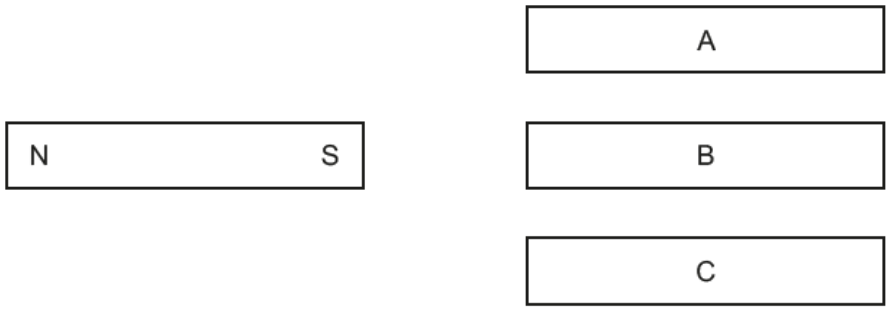


Fig. 9.1

The student tests each sample by holding each pole of the magnet close to one end of the sample. Table 9.1 shows his observations.

Table 9.1

sample	effect of N pole	effect of S pole
A	attraction	attraction
B	no effect	no effect
C	attraction	repulsion

(a) Using the information in Table 9.1, draw a straight line from each sample to its correct property. Draw **three** lines.

sample	**property**
A	magnetic and magnetised
B	magnetic but not magnetised
C	non-magnetic

[2]

(b) Describe **one** method of producing a magnet from a bar of unmagnetised steel.

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..... [2]

(c) Another student does an experiment with some electrostatically charged plastic rods.

Fig. 9.2 shows the student's arrangement.

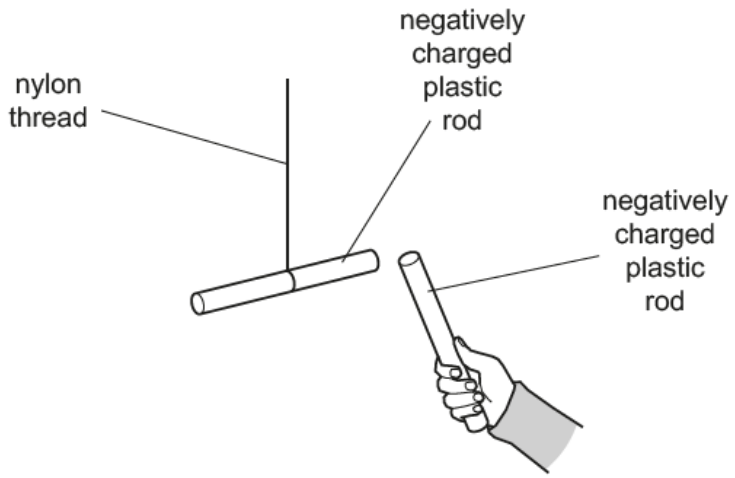

Fig. 9.2

Describe and explain what happens as the student brings one negatively charged rod close to the other negatively charged rod.

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..... [2]

[Total: 6]

14. Nov/2020/Paper_41/No.7

(a) A permanent magnet is made from only one material.

Underline the material from which it is possible to make a permanent magnet. [1]

aluminium **copper** **soft iron** **mercury** **plastic** **steel** **uranium**

(b) An electron source produces a narrow beam of electrons that all travel at the same speed.

The electron source is placed in a vacuum and the beam of electrons travels vertically downwards. Fig. 7.1 shows the beam of electrons before it passes between the N-pole and the S-pole of a magnet.

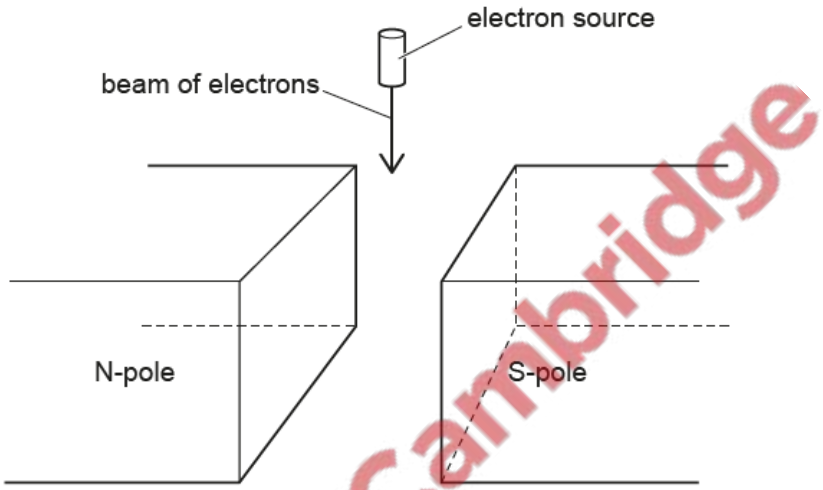

Fig. 7.1

(i) Describe what is meant by the direction of a magnetic field. State the direction of the magnetic field between the two poles in Fig. 7.1.

.....

.....

..... [1]

(ii) Describe and explain what happens to the beam of electrons in the magnetic field between the poles of the magnet in Fig. 7.1.

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..... [3]

(c) A beam consists of α-particles, β-particles and γ-rays.

Explain how a uniform magnetic field may be used to separate the α-particles, the β-particles and the γ-rays.

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..... [3]

[Total: 8]

15. Nov/2020/Paper_42/No.9

(a) Fig. 9.1 shows a bar magnet and four plotting compasses A, B, C and D.

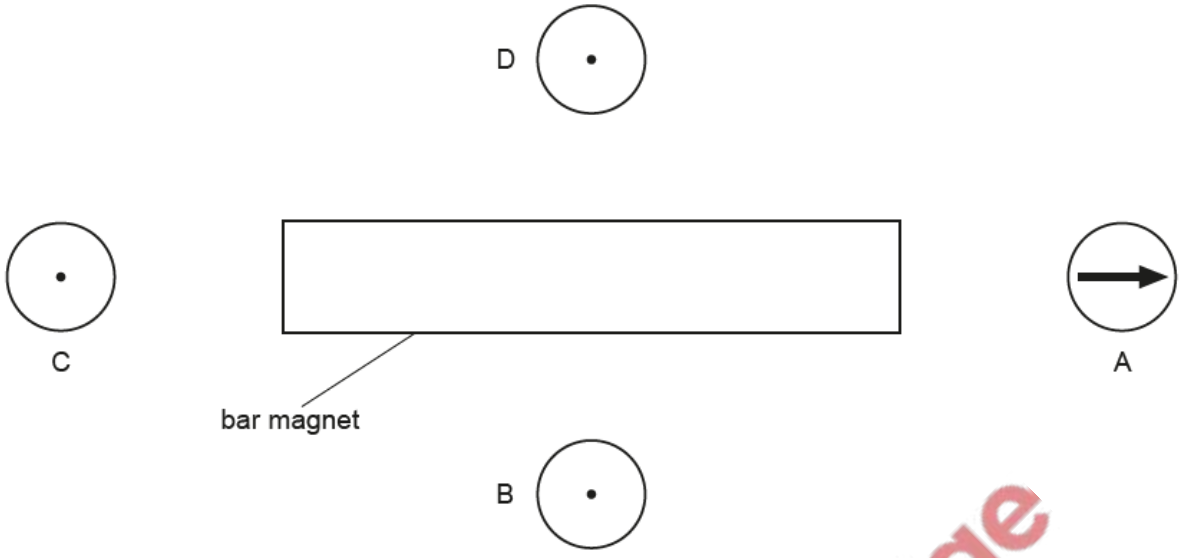

Fig. 9.1

On Fig. 9.1:

(i) draw an arrow on each of the three plotting compasses B, C and D to show the direction of the magnetic field [2]

(ii) label the magnetic poles of the bar magnet N and S. [1]

(b) Describe **one** method for demagnetising a bar magnet.

.....

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..... [2]

(c) Fig. 9.2 represents a current in a wire. The current is into the plane of the paper.

(i) Draw the pattern of the magnetic field produced around the wire. Show clearly the direction of the magnetic field.

Fig. 9.2

[2]

(ii) The direction of the current in the wire is reversed. The magnitude of the current is unchanged.

State the effect that reversing the current has on the magnetic field produced.

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..... [1]

[Total: 8]