Magnetism – 2020 IGCSE 0625

1. March/2020/Paper_12/No.27

The table shows the forces that exist between magnetic poles.

Which row is correct?

	N pole and N pole	N pole and S pole
A	attraction	attraction
B	attraction	repulsion
C	repulsion	attraction
D	repulsion	repulsion

2. June/2020/Paper_11/No.27

A permanent magnet is to be made.

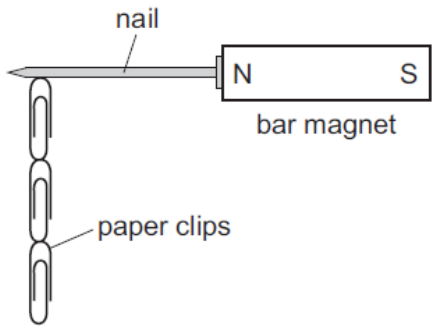
Which row gives the correct material to use and the correct reason for choosing this material?

	material	reason
A	soft iron	easy to demagnetise
B	soft iron	hard to demagnetise
C	steel	easy to demagnetise
D	steel	hard to demagnetise

3. June/2020/Paper_11/No.28

Four nails **A**, **B**, **C** and **D** are tested to find which makes the strongest permanent magnet.

One of the nails is placed against a bar magnet and the number of paper clips which the nail can support is recorded.



The bar magnet is then removed and the number of paper clips remaining attached to the nail is recorded. Each nail is tested individually.

Which nail becomes the strongest permanent magnet?

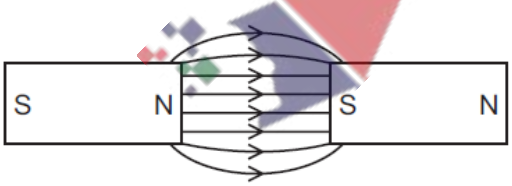
	number of paper clips attached to the nail	
	bar magnet present	bar magnet removed
A	2	0
B	2	1
C	4	3
D	5	2

4. June/2020/Paper_12/No.27

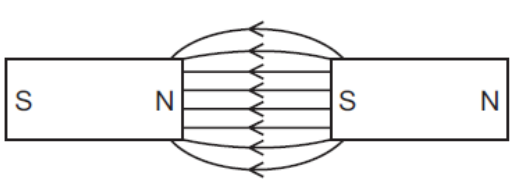
The diagrams show two bar magnets which are attracting each other.

Which diagram shows the magnetic field pattern between the poles?

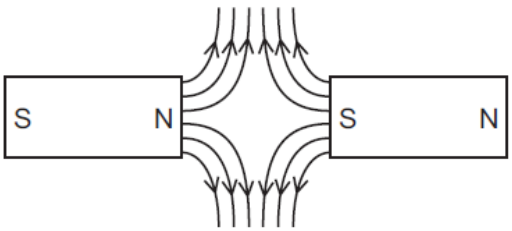
A



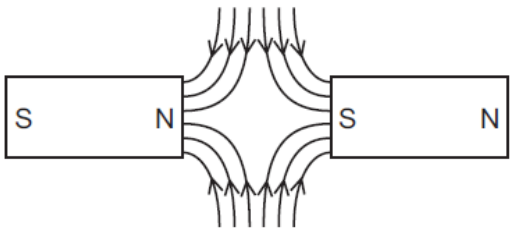
B



C



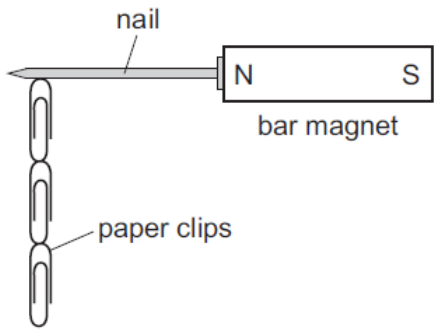
D



5. June/2020/Paper_12/No.28

Four nails **A**, **B**, **C** and **D** are tested to find which makes the strongest permanent magnet.

One of the nails is placed against a bar magnet and the number of paper clips which the nail can support is recorded.



The bar magnet is then removed and the number of paper clips remaining attached to the nail is recorded. Each nail is tested individually.

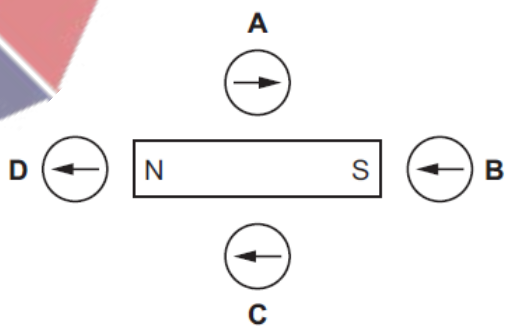
Which nail becomes the strongest permanent magnet?

	number of paper clips attached to the nail	
	bar magnet present	bar magnet removed
A	2	0
B	2	1
C	4	3
D	5	2

6. June/2020/Paper_13/No.27

The diagram shows a magnet with some plotting compasses. The compasses show the direction of the magnetic field of the magnet.

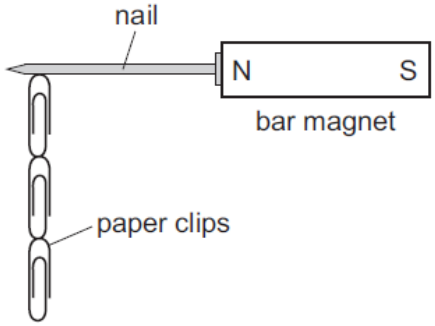
Which plotting compass has the needle pointing in the wrong direction?



7. June/2020/Paper_13/No.28

Four nails **A**, **B**, **C** and **D** are tested to find which makes the strongest permanent magnet.

One of the nails is placed against a bar magnet and the number of paper clips which the nail can support is recorded.



The bar magnet is then removed and the number of paper clips remaining attached to the nail is recorded. Each nail is tested individually.

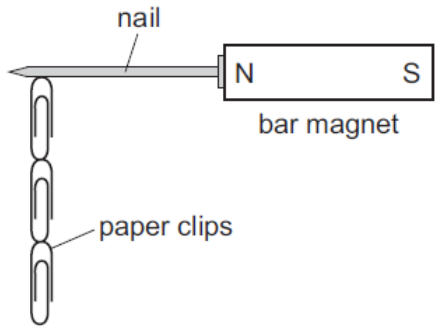
Which nail becomes the strongest permanent magnet?

	number of paper clips attached to the nail	
	bar magnet present	bar magnet removed
A	2	0
B	2	1
C	4	3
D	5	2

8. June/2020/Paper_21/No.26

Four nails **A**, **B**, **C** and **D** are tested to find which makes the strongest permanent magnet.

One of the nails is placed against a bar magnet and the number of paper clips which the nail can support is recorded.



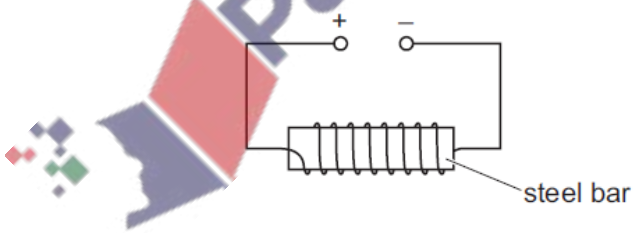
The bar magnet is then removed and the number of paper clips remaining attached to the nail is recorded. Each nail is tested individually.

Which nail becomes the strongest permanent magnet?

	number of paper clips attached to the nail	
	bar magnet present	bar magnet removed
A	2	0
B	2	1
C	4	3
D	5	2

9. June/2020/Paper_21/No.27

The circuit shows one method of magnetising a steel bar.



How can the circuit be altered so that it can be used to demagnetise the magnetised steel bar?

A remove the steel bar from the coil whilst the current is switched on

B replace the d.c. supply with an a.c. supply and gradually reduce the supply voltage to zero

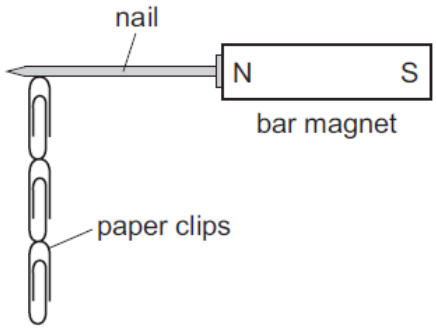
C reverse the polarity of the d.c. supply

D reverse the polarity of the d.c. supply and gradually reduce the supply voltage to zero

10. June/2020/Paper_22/No.26

Four nails **A**, **B**, **C** and **D** are tested to find which makes the strongest permanent magnet.

One of the nails is placed against a bar magnet and the number of paper clips which the nail can support is recorded.



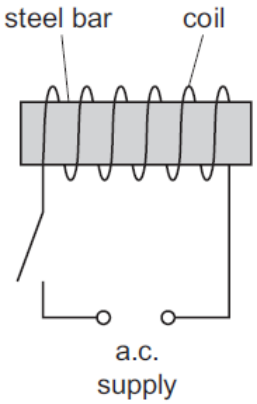
The bar magnet is then removed and the number of paper clips remaining attached to the nail is recorded. Each nail is tested individually.

Which nail becomes the strongest permanent magnet?

	number of paper clips attached to the nail	
	bar magnet present	bar magnet removed
A	2	0
B	2	1
C	4	3
D	5	2

11. June/2020/Paper_22/No.27

A student wants to demagnetise a steel bar. He uses the apparatus shown. He switches on the circuit for a few seconds and then switches off. He finds that the steel bar is still magnetised.



What should he do to improve his method?

A change the supply from an alternating to a direct voltage

B use a lower alternating voltage

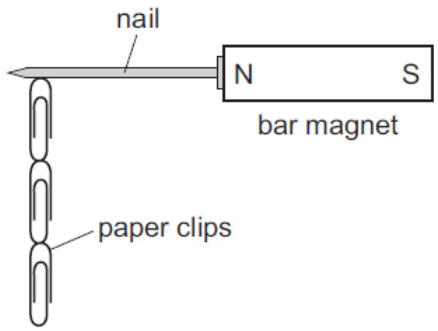
C remove the steel bar from the coil whilst the circuit is switched on

D use a coil that has fewer turns on it

12. June/2020/Paper_23/No.26

Four nails **A**, **B**, **C** and **D** are tested to find which makes the strongest permanent magnet.

One of the nails is placed against a bar magnet and the number of paper clips which the nail can support is recorded.



The bar magnet is then removed and the number of paper clips remaining attached to the nail is recorded. Each nail is tested individually.

Which nail becomes the strongest permanent magnet?

	number of paper clips attached to the nail	
	bar magnet present	bar magnet removed
A	2	0
B	2	1
C	4	3
D	5	2

13. June/2020/Paper_23/No.27

The diagrams show a magnetised steel rod inside a solenoid connected to a potentiometer.

In diagram 1, the potentiometer is connected to a d.c. power supply.

In diagram 2, the potentiometer is connected to an a.c. power supply.

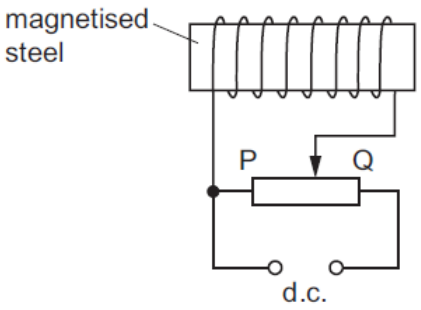


diagram 1

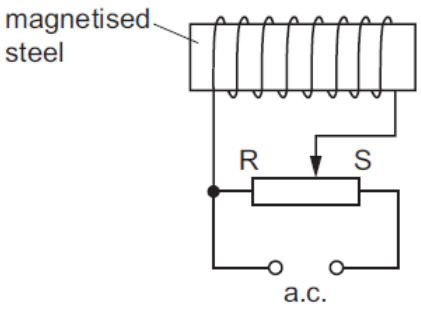


diagram 2

Which action would demagnetise the piece of steel?

A In diagram 1, move the potentiometer slide from P to Q.

B In diagram 1, move the potentiometer slide from Q to P.

C In diagram 2, move the potentiometer slide from R to S.

D In diagram 2, move the potentiometer slide from S to R.

14. June/2020/Paper_31/No.9(a)

(a) Fig. 9.1 shows the magnetic field pattern around a bar magnet.

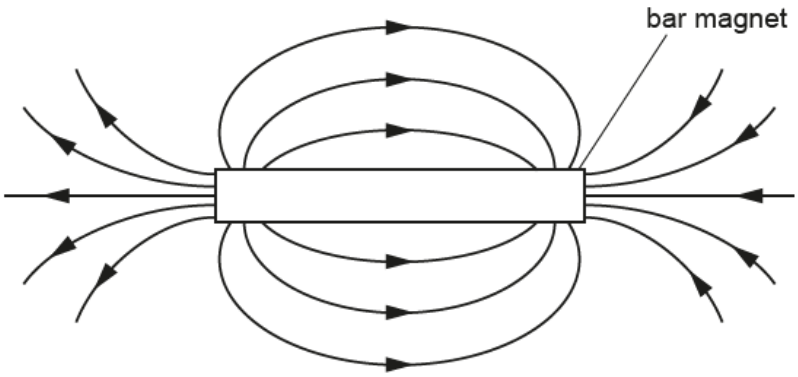


Fig. 9.1

(i) On Fig. 9.1, write the letters N and S to indicate the north and south poles of the magnet. [1]

(ii) Fig. 9.2 shows a soft-iron bar placed close to a permanent magnet.

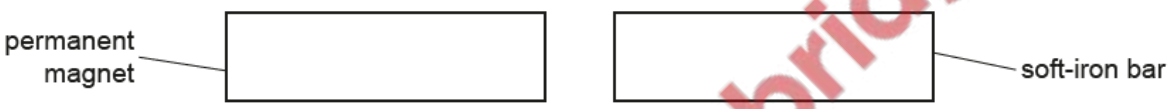


Fig. 9.2

State and explain what happens to the soft-iron bar. You may draw on Fig. 9.2.

.....

.....

..... [3]

15. June/2020/Paper_32/No.9

Some students plot the magnetic field lines around a bar magnet. They have the apparatus shown in Fig. 9.1 and a large sheet of paper.

bar magnet | plotting compass | pencil

Fig. 9.1

(a) Describe how the students use the apparatus in Fig. 9.1 to show the pattern of the magnetic field lines around the bar magnet.

You may draw a diagram to assist with your description.

.....

.....

.....

.....

.....

..... [3]

(b) Draw at least **four** lines above and below the bar magnet in Fig. 9.2 to show the magnetic field around the bar magnet. Draw an arrow on the field lines to show the direction of the magnetic field.

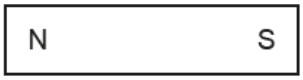


Fig. 9.2

[3]

[Total: 6]