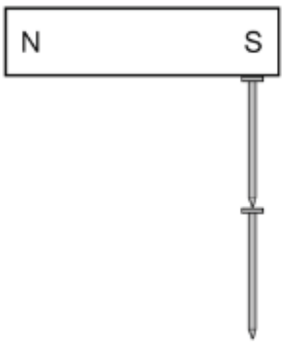
Eduqas Physics GCSE
Topic 8.1: Permanent and induced magnetism, magnetic forces and fields
Questions by topic

1. **Figure 2** shows two iron nails hanging from a bar magnet.

The iron nails which were unmagnetised are now magnetised.

Figure 2



1 Complete the sentence.

Use a word from the box.

[1 mark]

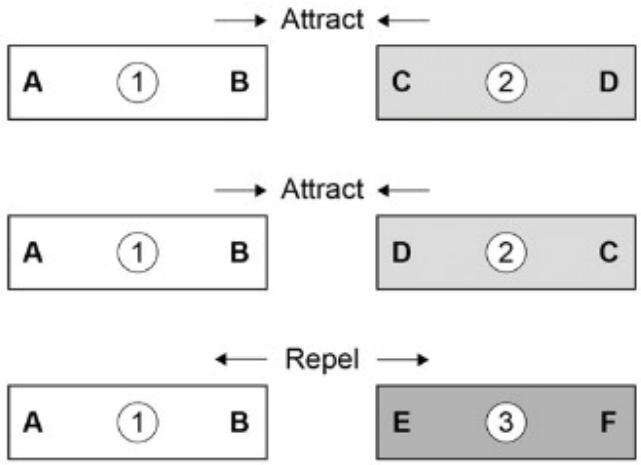
forced	**induced**	**permanent**

The iron nails have become _____ magnets.

2 Each of the three metal bars in **Figure 3** is either a bar magnet or a piece of unmagnetised iron.

The forces that act between the bars when different ends are placed close together are shown by the arrows.

Figure 3



Which **one** of the metal bars is a piece of unmagnetised iron?

[2 marks]

Tick **one** box.

Bar 1 ☐

Bar 2 ☐

Bar 3 ☐

Give the reason for your answer.

A student investigated the strength of different fridge magnets by putting small sheets of paper between each magnet and the fridge door.

The student measured the maximum number of sheets of paper that each magnet was able to hold in place.

3 Why was it important that each small sheet of paper had the same thickness?

[1 mark]

4 Before starting the investigation the student wrote the following hypothesis:

'The bigger the area of a fridge magnet the stronger the magnet will be.'

The student's results are given in **Table 1**.

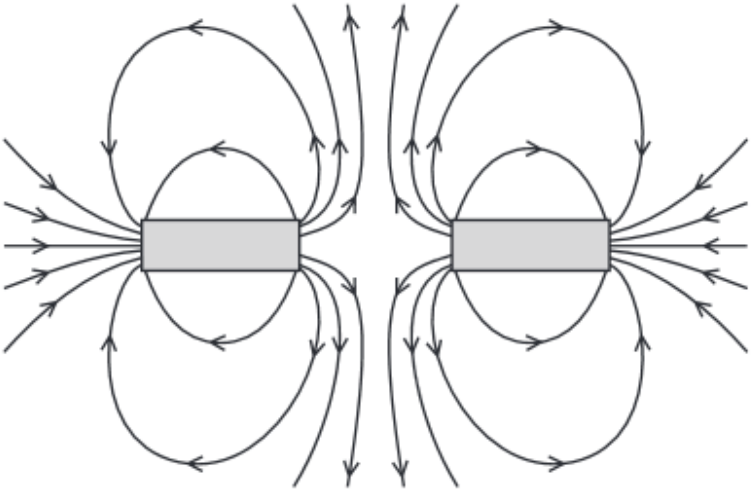
Table 1

Fridge magnet	Area of magnet in mm^2	Number of sheets of paper held
A	40	20
B	110	16
C	250	6
D	340	8
E	1350	4

Give **one** reason why the results from the investigation **do not** support the student's hypothesis.

[1 mark]

2. The diagram shows the magnetic field around two bar magnets.

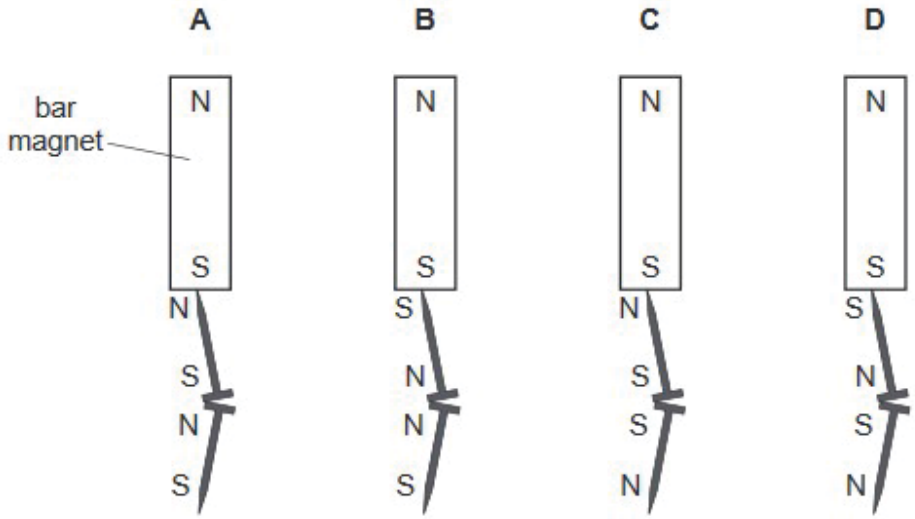


Which diagram shows the poles of the magnets?

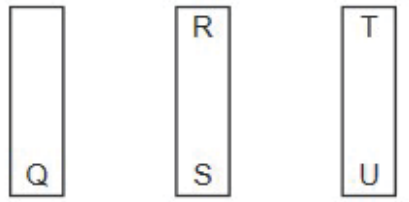
A	N S	N S
B	N S	S N
C	S N	N S
D	S N	S N

3. Two iron nails hang from a bar magnet.

Which diagram shows the magnetic poles induced in the nails?



4. The ends of three metal rods are tested by holding end Q of rod 1 close to the others in turn.



The results are as follows.

End Q: attracts end R,
attracts end S,
attracts end T,
repels end U.

Which of the metal rods is a magnet?

A rod 1 only

B rod 1 and rod 2

C rod 1 and rod 3

D rod 3 only

5. Which statement describes a property of a magnet?

A It attracts ferrous materials.

B It could have only one pole (north or south).

C It points in a random direction when suspended.

D It repels non-ferrous materials.

6. The diagram shows a magnet being brought near to an unmagnetised iron bar. This causes the iron bar to become magnetised.

Which magnetic pole is induced at X and how is the iron bar affected?

	pole induced	effect on iron bar
A	north	attracted
B	north	repelled
C	south	attracted
D	south	repelled

7. Which test could be used to find which end of a magnet is the north pole?

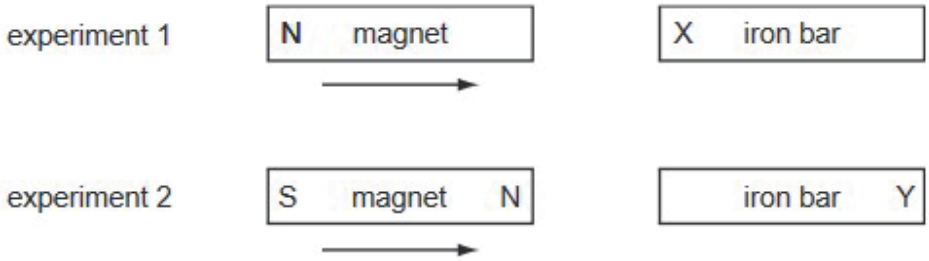
A putting it near a compass needle

B putting it near a ferrous metal

C putting it near a non-ferrous metal

D putting it near a steel spoon

8. In two separate experiments, a magnet is brought near to an unmagnetised iron bar. This causes the bar to become magnetised.



Which magnetic poles are induced at X and at Y?

	pole induced at X	pole induced at Y
A	N	N
B	N	S
C	S	N
D	S	S