Simple Phenomena of Magnetism

Question Paper

Course	CIE IGCSE Physics
Section	4. Electricity & Magnetism
Topic	Simple Phenomena of Magnetism
Difficulty	Hard

Time Allowed 10

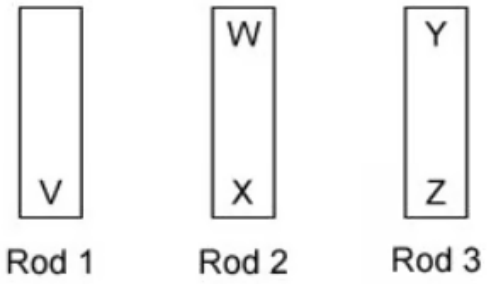
Score /5

Percentage /100

Question 1

A student has a collection of metal bars that keep sticking to each other. She suspects that they might be magnets, so she runs a test.

She holds end V of rod 1, near to each end of the two other rods. The ends are shown in the diagram below.



Her results are as follows:

End V:

- Repels end W
- Attracts end X
- Attracts end Y
- Attracts end Z

Which of the metal rods is a magnet?

A. 1 and 2

B. 2 and 3

C. 1 only

D. 2 only

[1 mark]

Question 2

A student has what he believes to be a permanent magnet. He wants to find out which end is the magnet's North pole.

What could he do to find out?

A. Put the magnet under a piece of paper, and sprinkle iron filings on top.

B. Put it near to a piece of magnetic material, like a steel paperclip.

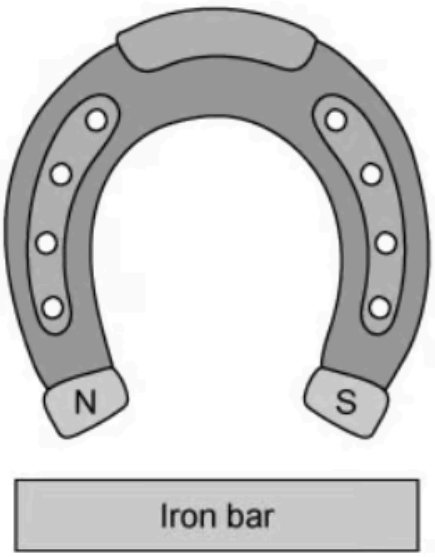
C. Place a compass near it.

D. Put it near to a piece of ferrous material.

[1 mark]

Question 3

A teacher, Mr. Garrison, brings a horseshoe magnet near to an iron bar as shown in the diagram.



Is the iron bar attracted to or repelled from the horseshoe magnet?

Which diagram shows the polarity of the poles that are produced in the iron bar?

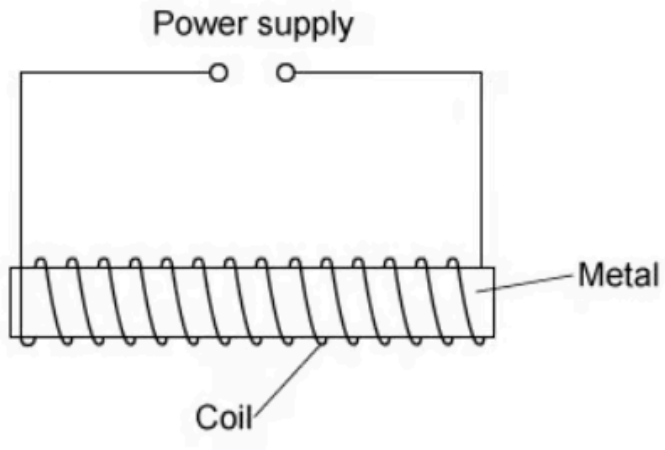
Rod	Attracted / Repelled	Pole Distribution
A	repelled	S N
B	repelled	N S
C	attracted	N S

D	attracted	S N

[1 mark]

Question 4

A student wants to make an electromagnet that acts like a permanent magnet that will retain its magnetism after it is switched off. The student is using some easy-to-find materials that are in the school lab.



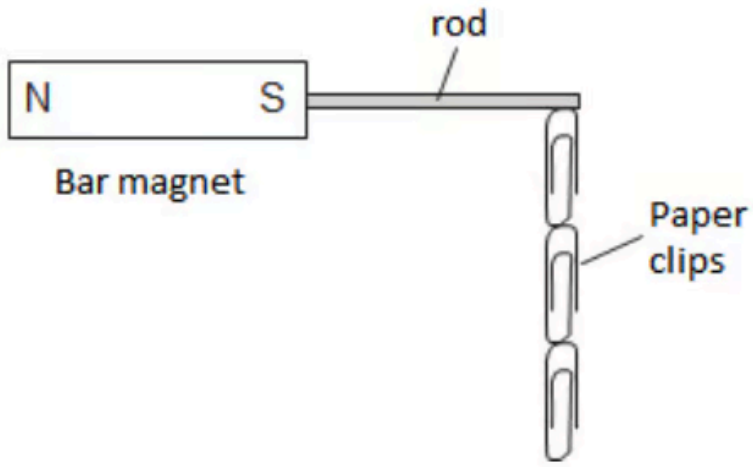
Which metal should the student use, and which setting on the power supply?

	Metal	Power supply setting
A	Soft iron	6V a.c.
B	steel	6V a.c.
C	Soft iron	6V d.c.
D	steel	6V d.c.

[1 mark]

Question 5

A student carries out an experiment to find out which of four metal rods makes the best permanent magnet.



The rod is attached to the south pole of a permanent magnet, and then paper clips are attached to the rod. The number of paper clips that can be held by the rod is counted.

The permanent magnet is then removed from the rod, and the number of paper clips that remain attached are counted.

The results are summarised in the table below.

Which of the rods becomes the strongest permanent magnet?

rod	number of paper clips held by the rod	
	when the magnet is present	when the magnet is removed
A	5	2
B	4	3
C	2	0
D	3	2

[1 mark]