

Name of the Student: _____

Max. Marks : 19 Marks

Time : 19 Minutes

Q1.

Answer the question with a cross in the box you think is correct (☒). If you change your mind about an answer, put a line through the box (☒) and then mark your new answer with a cross (☒).

A student is given two permanent magnets and some paper clips, as shown in Figure 10.

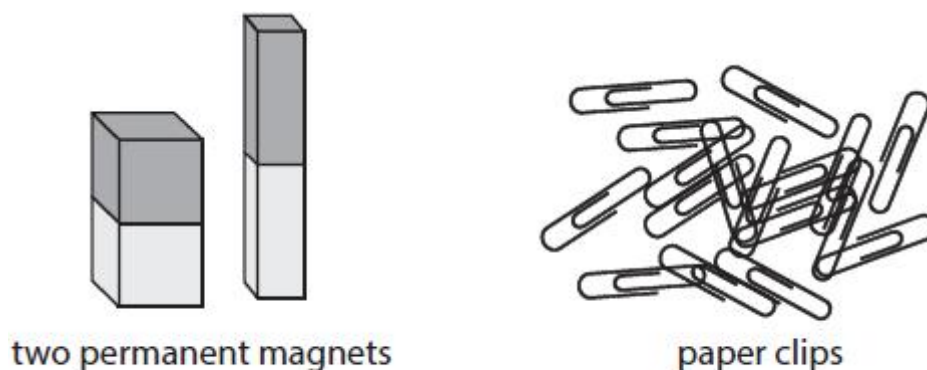


Figure 10

The paper clips are **not** magnets, but they are made from a magnetic material.

(i) Which of these is a magnetic material?

- ☒ A aluminium
☒ B iron
☒ C plastic
☒ D wood

(1)

(ii) Describe how the student could use the paper clips to find out which of the two permanent magnets is the stronger magnet.

(2)

.....

.....

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.....

(Total for question = 3 marks)

Q2.

Figure 6 shows some objects and words describing these objects.

Draw one line from each object to its description.

(2)

object		description
 nail in a current-carrying coil		non-magnetic
 plotting compass needle		permanent magnet
 wooden ruler		temporary magnet

Figure 6

(Total for question = 2 marks)

Q3.

Answer the question with a cross in the box you think is correct ☐. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☐.

Which of these is a magnetic material?

(1)

- ☐ **A** aluminium
- ☐ **B** carbon
- ☐ **C** cobalt
- ☐ **D** copper

(Total for question = 1 mark)

Q4.

Three of the following are magnetic materials.

Which of these is **NOT** a magnetic material?

(1)

- ☐ A cobalt
- ☐ B copper
- ☐ C iron
- ☐ D nickel

(Total for question = 1 mark)

Q5.

A student investigates the magnetic properties of three rods. Each rod is made of one of the following materials:

- soft iron
- steel
- wood

The student places each rod in a solenoid that is connected to a direct current power supply.

The power supply is switched on for a short time.

The student tests the magnetic strength of each rod by seeing how many paper clips it can pick up as shown in Figure 6.



Figure 6

The student's results are shown in Figure 7.

rod	number of paper clips picked up by rod			
	before rod is placed in solenoid	when there is current in solenoid	1 minute after current is switched off	10 minutes after current is switched off
A	0	0	0	0
B	0	6	1	0
C	0	8	7	7

Figure 7

Complete the table below to show which material (soft iron, steel or wood) each rod is made from, with the reason why.

Part of the table has been done for you.

Use information from Figure 7.

(3)

rod	material	reason
A		It is not magnetic because it does not pick up paper clips whether there is a current or not.
B		
C		

(Total for question = 3 marks)

Q6.

This question is about magnets and magnetism.

Figure 8 shows a magnet that has picked up three paper clips.

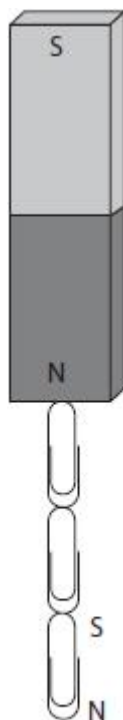


Figure 8

(i) The poles of the lowest paper clip are labelled.

Label the poles of the other two paper clips in Figure 8.

(2)

(ii) Complete the sentence, by choosing a word from the box, to describe the type of magnetism that these paper clips have.

(1)

alternated	earthed	induced	transformed
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These paper clips have magnetism.

(iii) Suggest a material that these paper clips in Figure 8 could be made from.

(1)

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(iv) When the paper clips were pulled off the magnet they fell separately to the table.

Describe how you could test whether any of the paper clips had kept any magnetism.

(2)

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(Total for question = 6 marks)

Q7.

Figure 4 shows the magnetic field produced by a current in a long, straight wire.

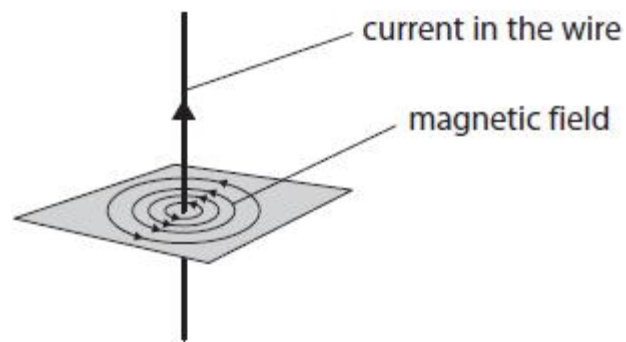


Figure 4

Which row of the table is correct when the strength of the magnetic field is greatest?

(1)

	distance from the wire	current
☐ A	small	small
☐ B	small	large
☐ C	large	small
☐ D	large	large

(Total for question = 1 mark)

Q8.

Figure 5 shows a magnet holding some paper clips.

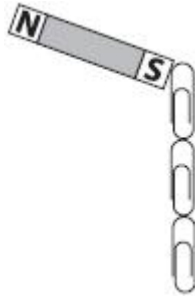


Figure 5

Describe how a student could show that the paper clips are induced magnets.

(2)

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(Total for question = 2 marks)