Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic : 12_Magnetism and the motor effect

Name of the Student:_____
Max. Marks : 18 Marks **Time : 18 Minutes**

Q1.

A student has

- a power pack
- a long piece of wire
- a stiff card
- iron filings

Describe how the student could use this equipment to show the shape of the magnetic field produced by a current in the wire.

You may draw a diagram to help with your answer.

(4)

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(Total for question = 4 marks)

Q2.

A student measures the strength of the magnetic field at several distances from the wire in Figure 7.
Figure 8 shows most of the student's results.

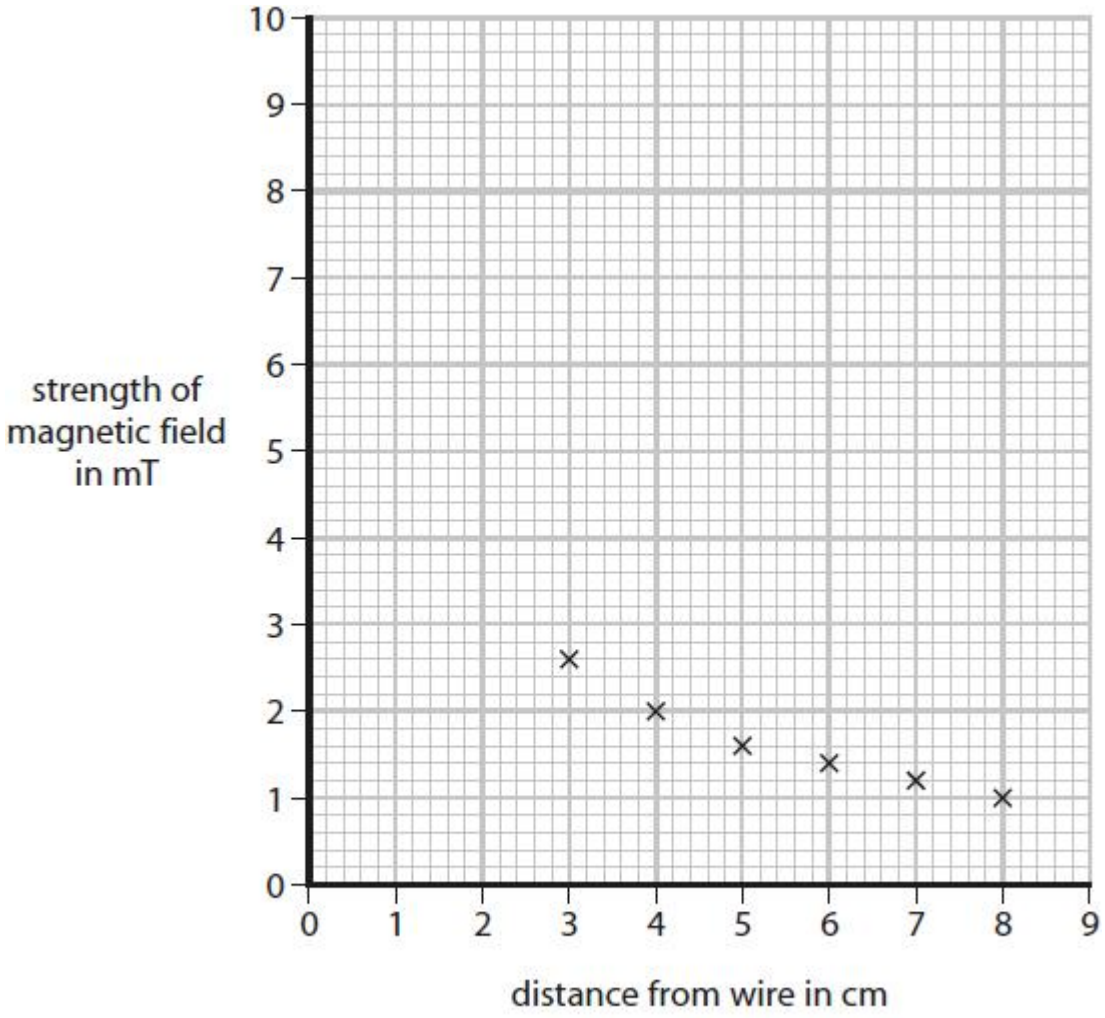

Figure 8

Figure 9 shows two extra sets of results.
mT is a unit of strength of a magnetic field.

distance from wire in cm	strength of magnetic field in mT
1.0	8.1
2.0	3.9

Figure 9

(i) Plot the two extra points on Figure 8.

(2)

(ii) Draw a best fit curve on the graph in Figure 8.

(1)

(iii) Use the graph in Figure 8 to calculate the change in strength of magnetic field when the distance from the wire changes from 4 cm to 8 cm.

(2)

change in strength of magnetic field = ... mT

(iv) The distance from the wire affects the strength of the magnetic field.

State **one** other factor that affects the strength of the magnetic field.

(1)

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(Total for question = 6 marks)

Q3.

Figure 3 shows a coil of wire called a solenoid.

Figure 3

Figure 4 gives information about the magnetic field of a solenoid.

description of the magnetic field	part of magnetic field	
	inside the coil	outside the coil
strong	✓	x
weak	x	✓
uniform	✓	x
non-uniform	x	✓

Figure 4

Draw lines on Figure 5 to show the shape of the magnetic field **inside** the solenoid.

Use information from Figure 4.

(1)

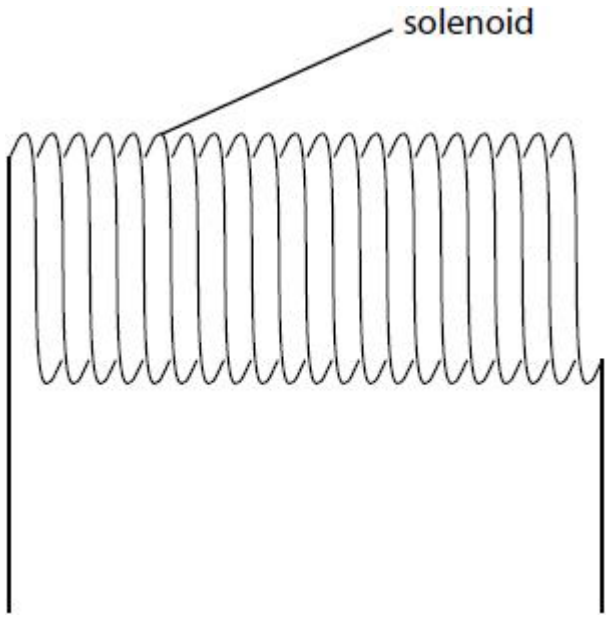

Figure 5

(Total for question = 1 mark)

Q4.

Figure 7 shows a wire passing through a piece of card.
The wire carries an electric current.

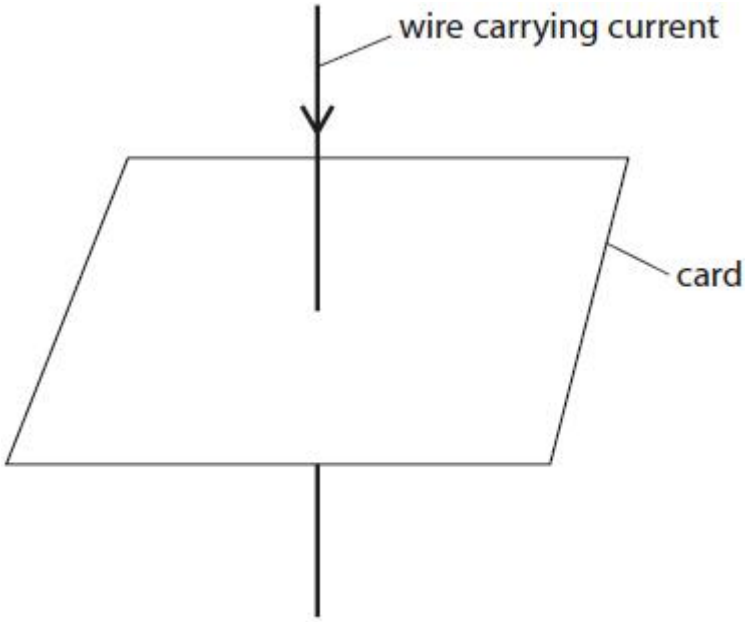

Figure 7

(i) Draw **one** magnetic field line on Figure 7, to show the shape of the magnetic field produced by the current.

(1)

(ii) Draw **one** arrow on the field line you have drawn to show the direction of the magnetic field.

(1)

(Total for question = 2 marks)

Q5.

Figure 5 shows two magnetic poles facing each other.

The magnetic field between the poles is uniform.

On Figure 5, draw the magnetic field lines between the two poles and show the direction of this magnetic field.

(3)

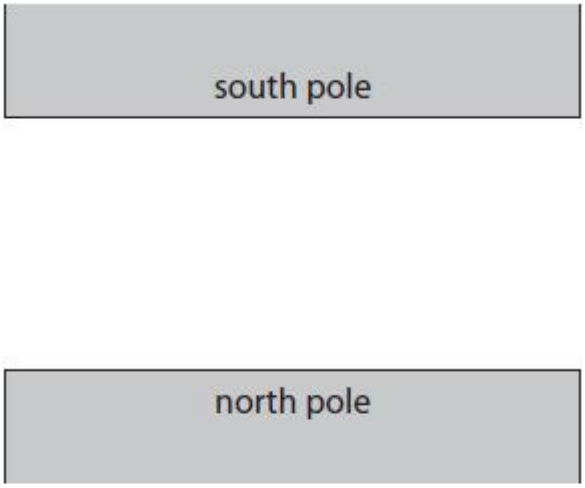

Figure 5

(Total for question = 3 marks)

Q6.

Figure 13 shows a part of a machine used to separate steel cans from aluminium cans.

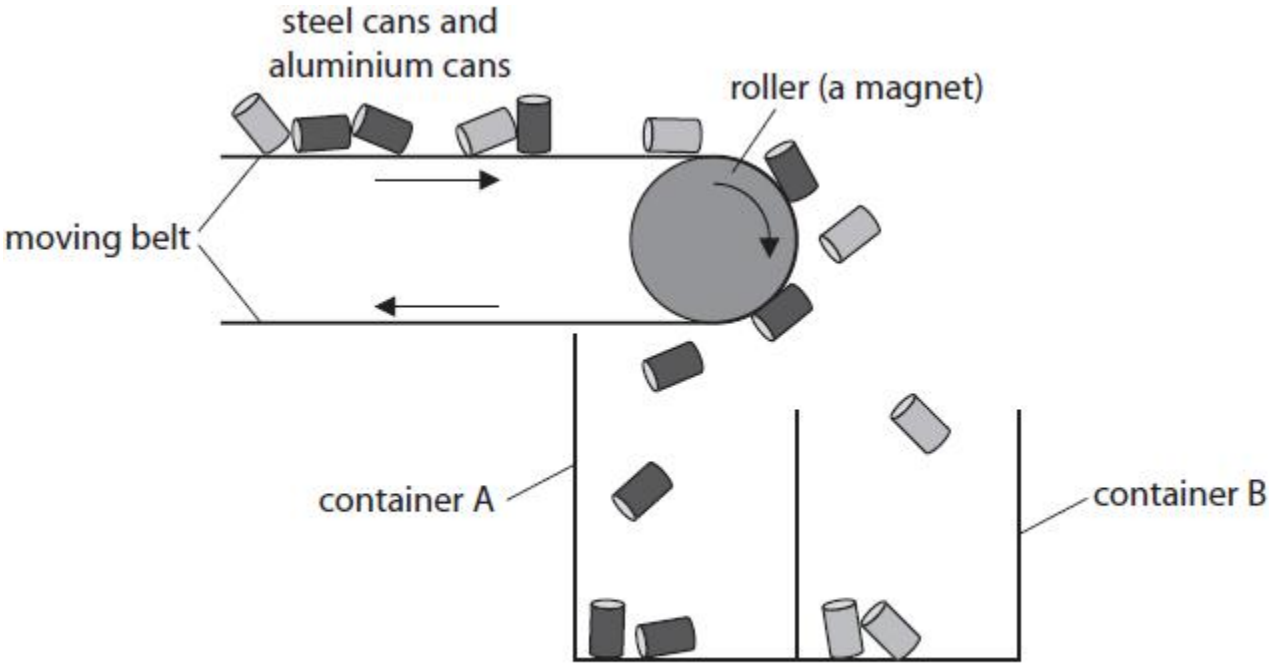

Figure 13

The cans are carried along a moving belt.

The belt goes around a roller.

The roller is a magnet.

Each can falls into one of the containers.

Explain how this machine separates the steel cans from the aluminium cans.

(2)

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(Total for question = 2 marks)