Practice Question Set For GCSE

Subject : Physics

Paper-2 Topic: Magnetism And Electromagnetism (High Demand Questions)

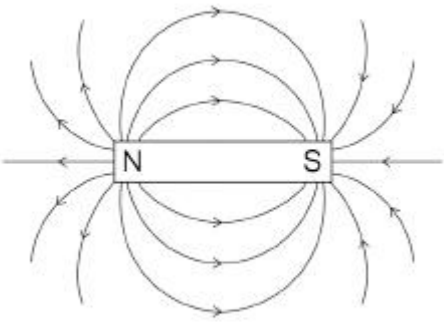
Name of the Student:____

Max. Marks : 26 Marks **Time : 26 Minutes**

Q1.

Figure 1 shows the magnetic field pattern around a permanent magnet.

Figure 1



(a) Where is the magnetic field of the magnet the strongest?

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(1)

(b) How does **Figure 1** show that the strength of the magnetic field is not the same at all places?

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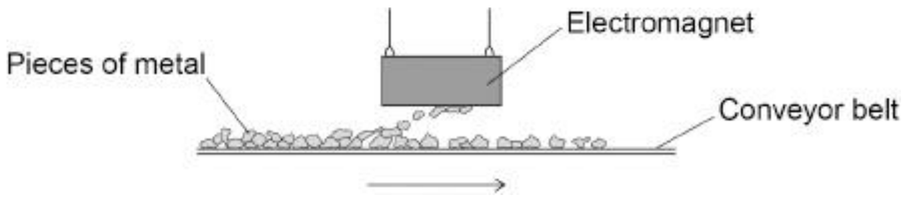
(1)

Figure 2 shows an electromagnet being used to separate iron and steel from non-magnetic metals.

Figure 2



(c) Explain **one** reason why an electromagnet is used instead of a permanent magnet.

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(2)

(d) Pieces of iron and steel are attracted to the electromagnet.

Name **two** other metals that would be attracted to the electromagnet.

1 ___________________________

2 ___________________________

(2)

(e) The design of the electromagnet **cannot** be changed.

Give **two** ways the force exerted by the electromagnet on a piece of iron or steel could be increased.

1 ___________________________

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2 ___________________________

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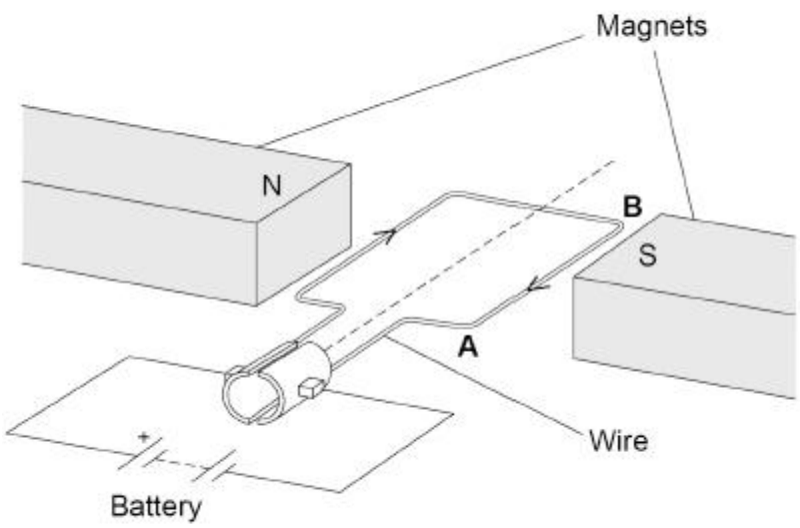
(2)

The conveyor belt that moves the pieces of metal is driven by an electric motor.

Figure 3 shows a simple electric motor.

Figure 3



(f) The length of the wire **AB** in the magnetic field is 120 mm.

There is a current of 4.0 A in the wire. The length of wire **AB** experiences a force of 0.36 N.

Calculate the magnetic flux density between the magnets.

Give the unit.

____

____

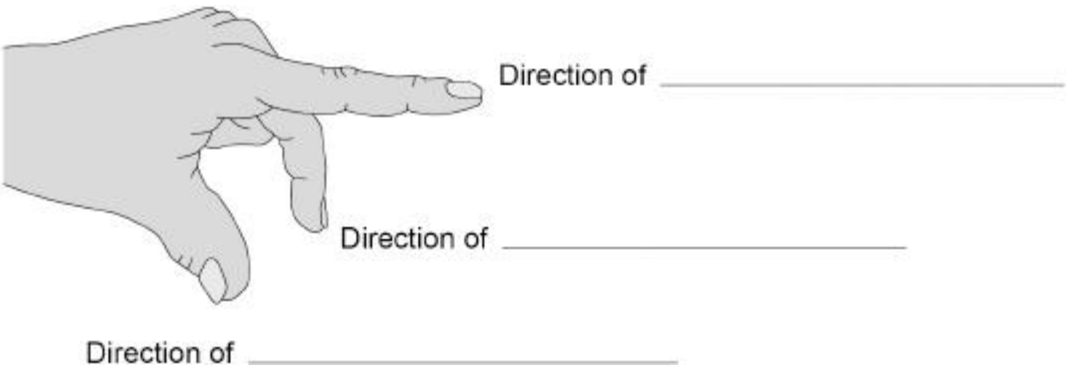
Magnetic flux density = ________________ Unit ___________

(5)

(g) Fleming's left-hand rule can be used to determine the direction of the force on wire **AB**.

Complete the labels on **Figure 4** to show Fleming's left-hand rule.

Figure 4



(2)

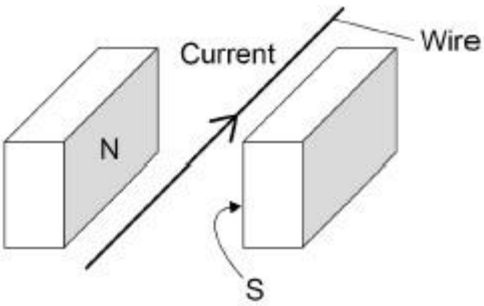
(Total 15 marks)

Q2.

Figure 1 shows a wire in a magnetic field.

The direction of the current in the wire is shown.

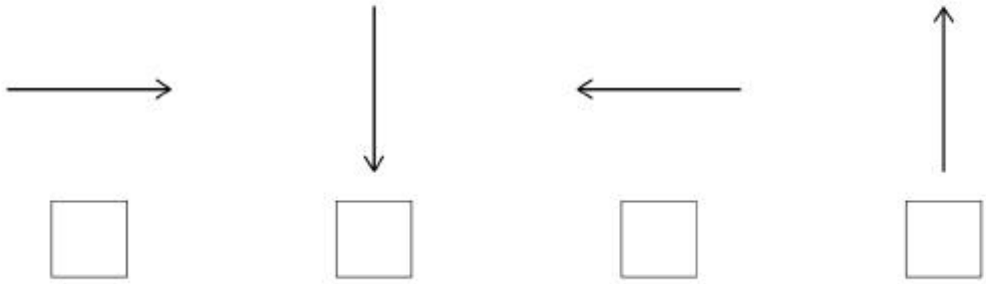
Figure 1



(a) There is a force on the wire due to the current in the magnetic field.

In which direction is the force on the wire?

Tick (✓) **one** box.



(1)

(b) Give **two** ways that the direction of the force on the wire could be reversed.

1 ____

2 ____

(2)

(c) The length of the wire in the magnetic field is 0.050 m

The force on the wire is 0.072 N

magnetic flux density = 360 mT

Calculate the current in the wire.

Use the Physics Equations Sheet.

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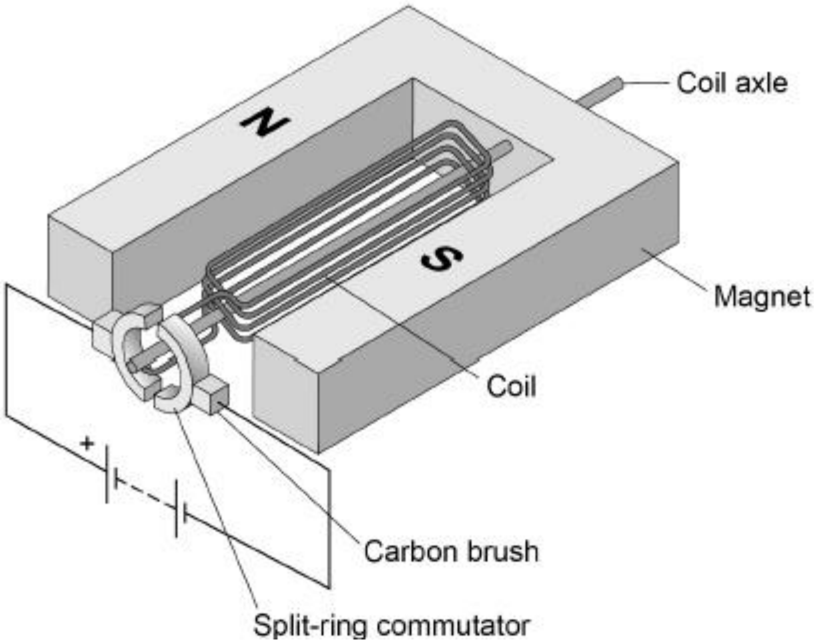
Current = ____________________ A

(4)

(d) **Figure 2** shows a simple motor.

Figure 2



Explain why the coil rotates when there is a current in the coil.

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(4)

(Total 11 marks)