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

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Name of the Student:_____
Max. Marks : 20 Marks **Time : 20 Minutes**

Q1.

A power transmission wire hangs so that it is at right angles to the Earth's magnetic field.
Although this magnetic field is constant, the cable experiences a changing force.
Explain why the force experienced by the cable changes.

(4)

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(Total for question = 4 marks)

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Q2.

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 ☒.

Figure 11 shows a copper wire between two magnetic poles.

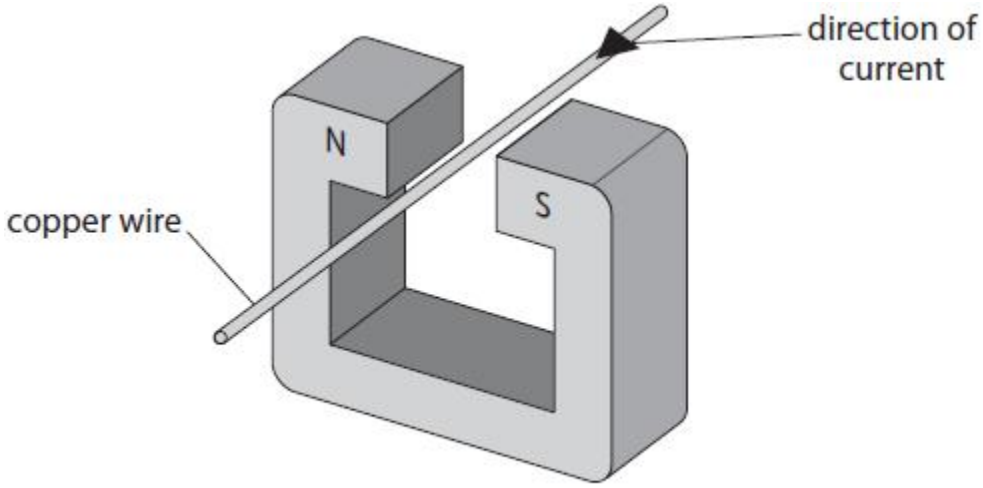


Figure 11

The current in the wire is in the direction shown by the arrow.

The wire experiences a force due to the magnetic field.

(i) The direction of the force due to the magnetic field is

(1)

☒ **A** down

☒ **B** up

☒ **C** towards the north pole of the magnet

☒ **D** towards the south pole of the magnet

(ii) The interaction between the magnetic fields produced by the magnet and the current in the wire produces forces on the magnet and the wire.
Compare these two forces.

(1)

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(iii) Figure 12 shows a different wire inside a uniform magnetic field.

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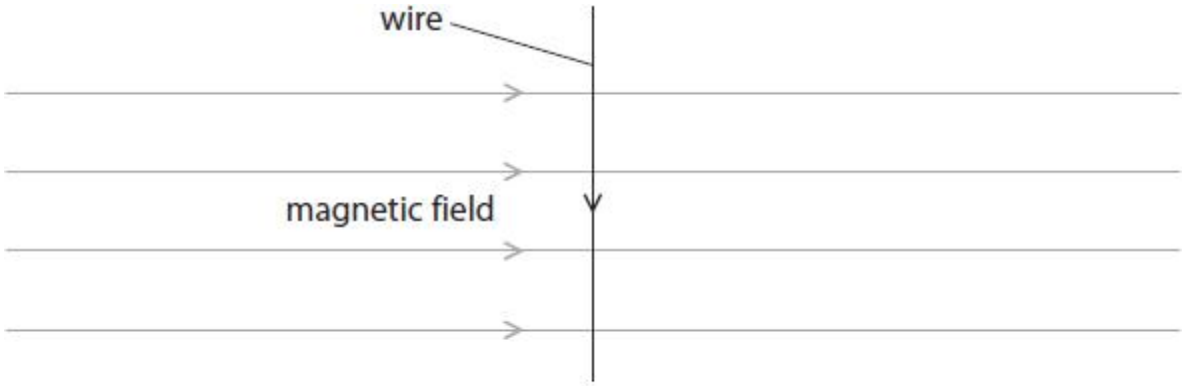


Figure 12

The magnetic flux density of the magnetic field is 0.72 N/A m.
The length of the wire inside the field is 30 mm.
The size of the force due to the magnetic field on the wire is 0.045 N.

Calculate the size of the current in the wire.

Use an equation selected from the list of equations at the end of this paper.

(3)

current in the wire = ... A

(Total for question = 5 marks)

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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 ☒.

Figure 4 shows a copper wire between two magnetic poles.

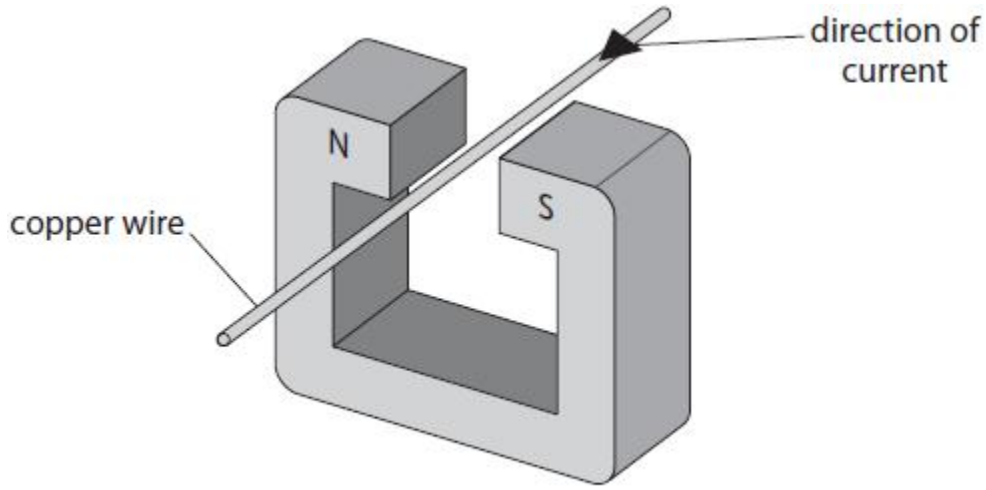


Figure 4

The current in the wire is in the direction shown by the arrow.

The wire experiences a force due to the magnetic field.

(i) The direction of the force due to the magnetic field is

(1)

- ☒ **A** down
- ☒ **B** up
- ☒ **C** towards the north pole of the magnet
- ☒ **D** towards the south pole of the magnet

(ii) The interaction between the magnetic fields produced by the magnet and the current in the wire produces forces on the magnet and the wire.

Compare these two forces.

(1)

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.....

(iii) Figure 5 shows a different wire inside a uniform magnetic field.

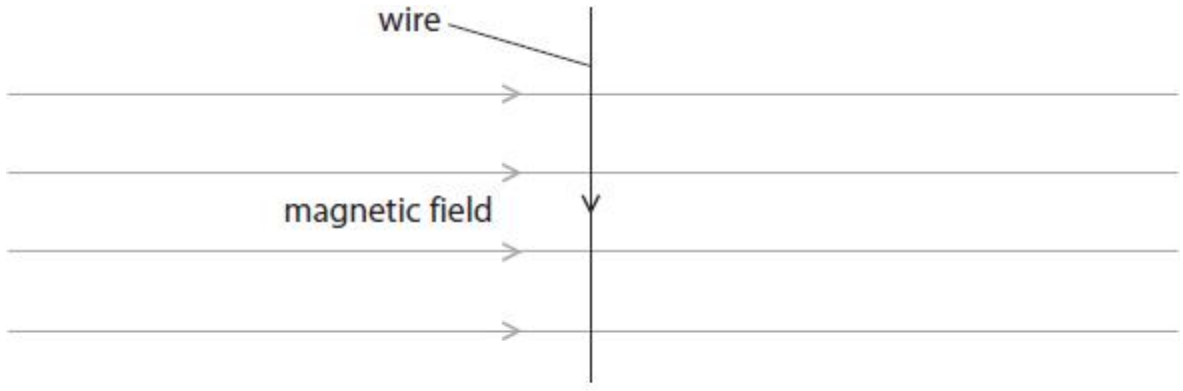


Figure 5

The magnetic flux density of the magnetic field is 0.72 N/A m.

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The length of the wire inside the field is 30 mm.
The size of the force due to the magnetic field on the wire is 0.045 N.
Calculate the size of the current in the wire.
Use an equation selected from the list of equations from the relevant equation sheet.

(3)

current in the wire = ... A

(Total for question = 5 marks)

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Q4.

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 ☒.

Figure 11 shows the magnetic field of a magnet.

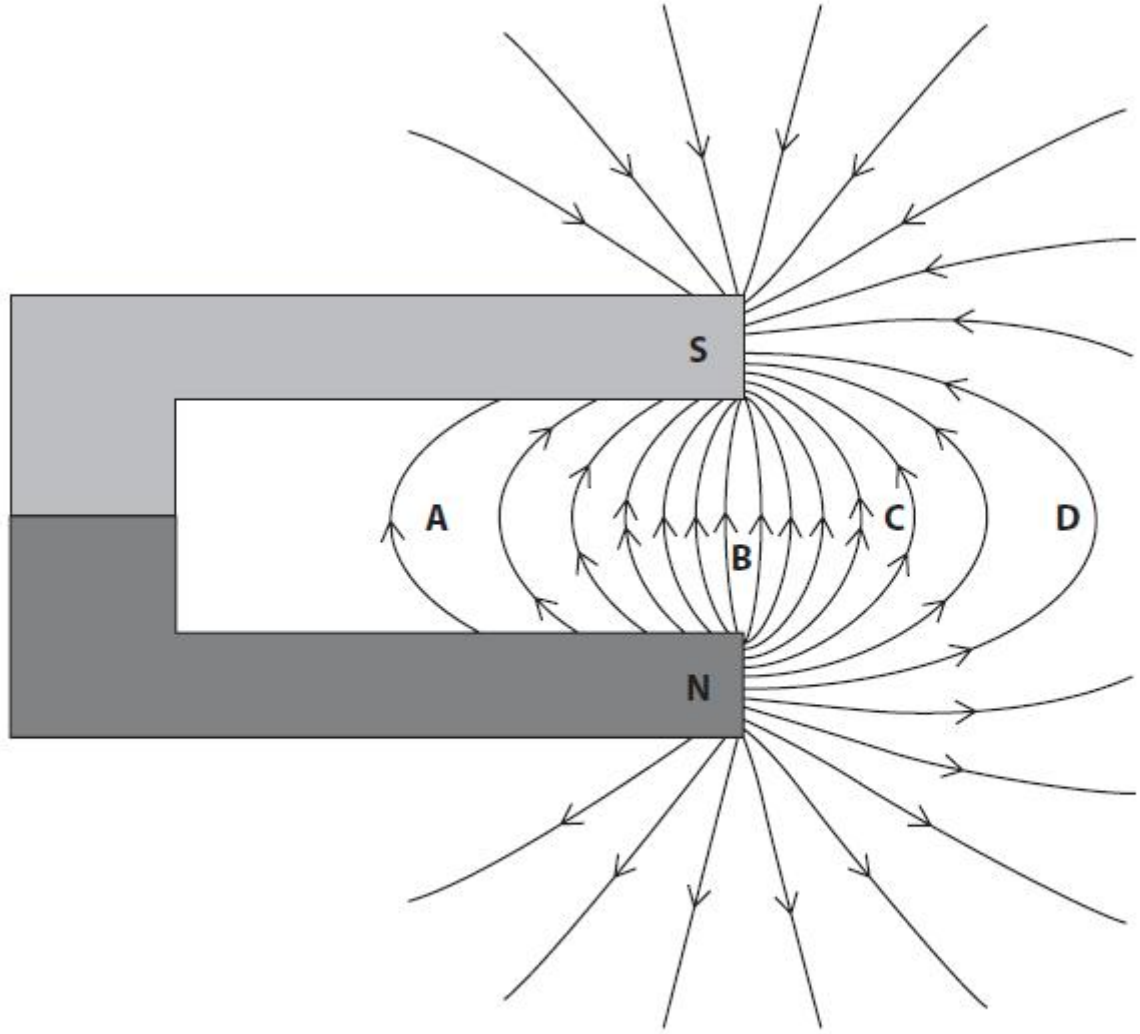


Figure 11

At which point is the magnetic field strongest?

(1)

- ☐ **A**
- ☐ **B**
- ☐ **C**
- ☐ **D**

(Total for question = 1 mark)

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Q5.

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 ☒.

Figure 6 shows the magnetic field of a magnet.

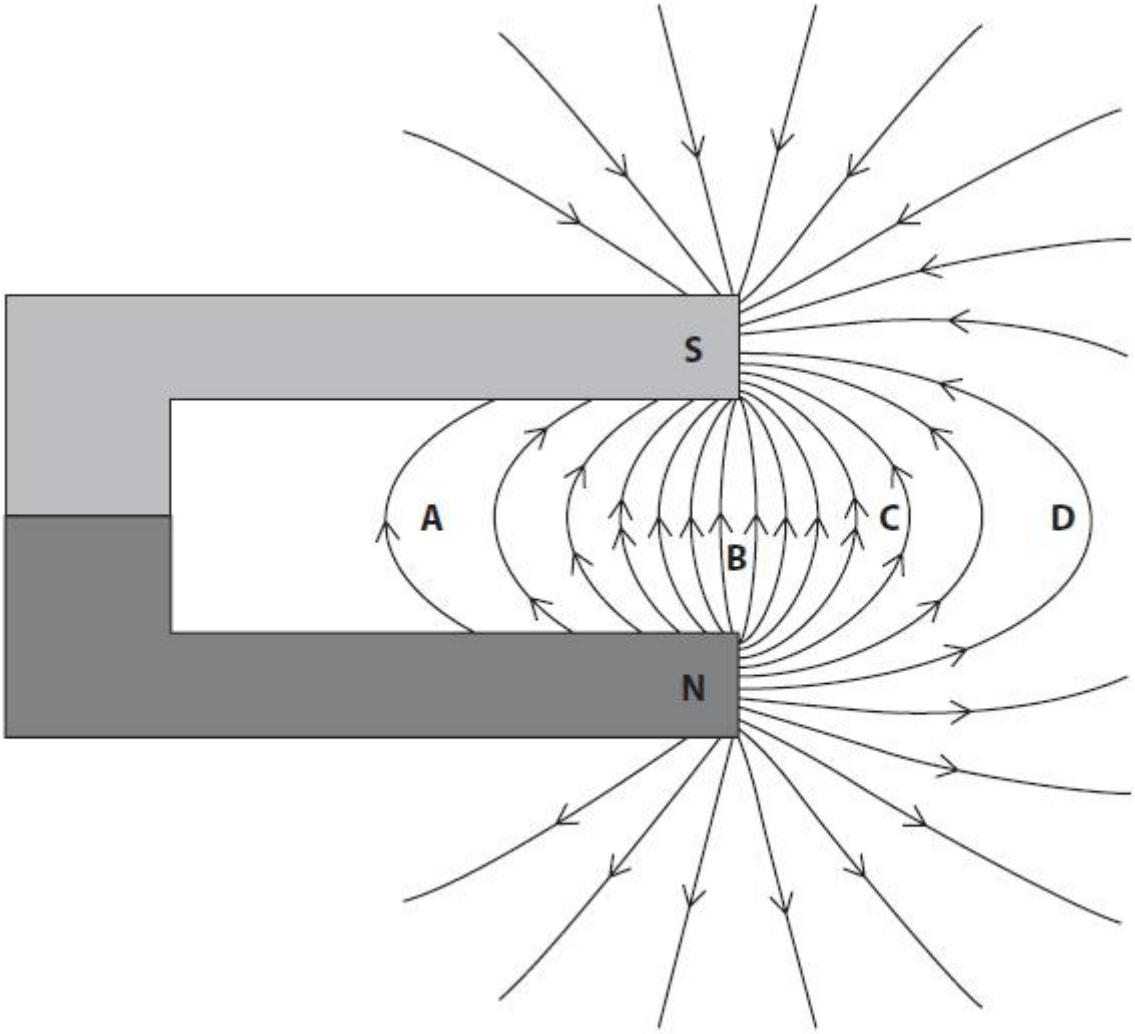


Figure 6

At which point is the magnetic field strongest?

(1)

- ☒ **A**
- ☒ **B**
- ☒ **C**
- ☒ **D**

(Total for question = 1 mark)

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Q6.

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 uses a plotting compass to investigate the magnetic field around a wire.

Figure 3 shows the wire going straight through a card.

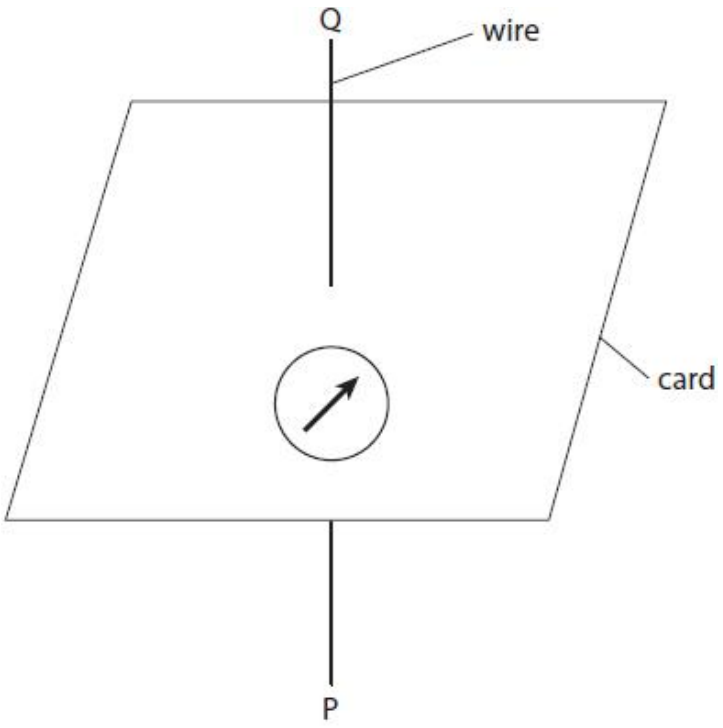


Figure 3

Figure 3 shows the compass needle when there is no current in the wire.

(i) Which of these shows a possible direction of the compass needle when there is a current in the wire going from P to Q?

(1)



☒ **A** ☒ **B** ☒ **C** ☒ **D**

(ii) Describe how the student could develop the investigation to find the shape of the magnetic field produced by the current.

(3)

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(Total for question = 4 marks)

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