Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic :12_Magnetism And The Motor Effect

Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Q1.

A wire is placed at right angles to the Earth's magnetic field.

The wire is 0.600 m long and carries a current of 93.1 mA.

The force on the wire is 1.11×10^{-5} N.

Calculate the magnetic flux density of the Earth's magnetic field.

Use the equation

$$F = B \times I \times l$$

(2)

magnetic flux density = ... T

(Total for question = 2 marks)

Q2.

Figure 4 shows a toy that has a plastic cylinder, a plastic base and two similar magnets. Each of the two magnets is in the shape of a ring.

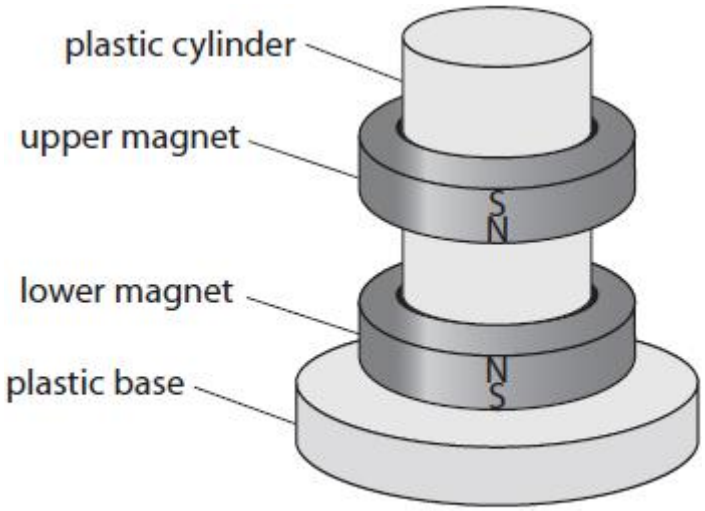

Figure 4

The upper magnet seems to float in the air above the lower magnet.

Describe the forces acting on the upper magnet.

Use the idea of magnetic fields in your answer.

(3)

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(Total for question = 3 marks)

Q3.

Figure 3 shows two magnets with their N poles facing each other.

Figure 3

On Figure 3, draw the shape and direction of the magnetic field between the two magnets.

(Total for question = 2 marks)

Q4.

Figure 7 shows a wire carrying a current.

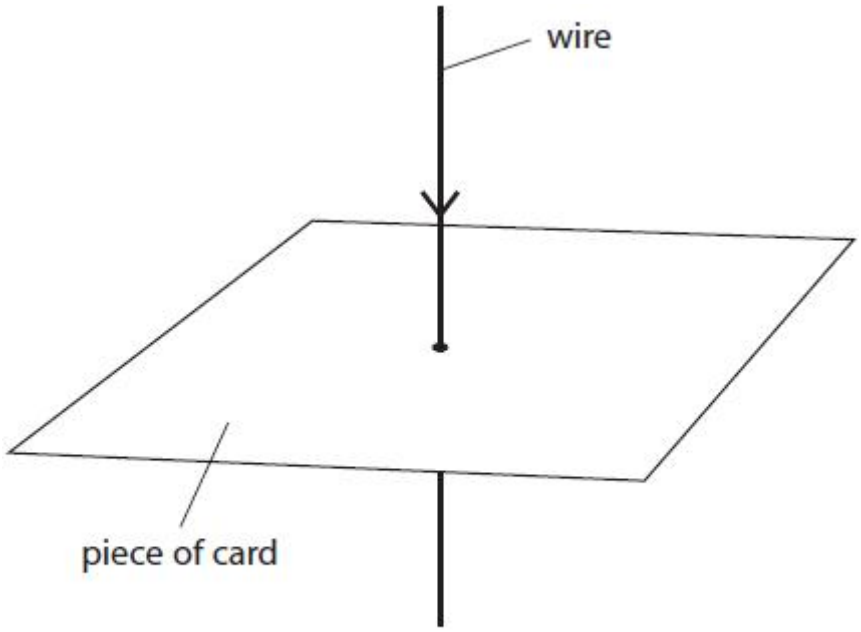

Figure 7

Draw, on the card in Figure 7, the magnetic field that is produced by the current.

(Total for question = 2 marks)

Q5.

Figure 6 represents the Earth.

Figure 6 shows **two** magnetic compass needles placed near to the Earth's surface, at points Q and T.

Each magnetic compass needle can rotate about its central dot.

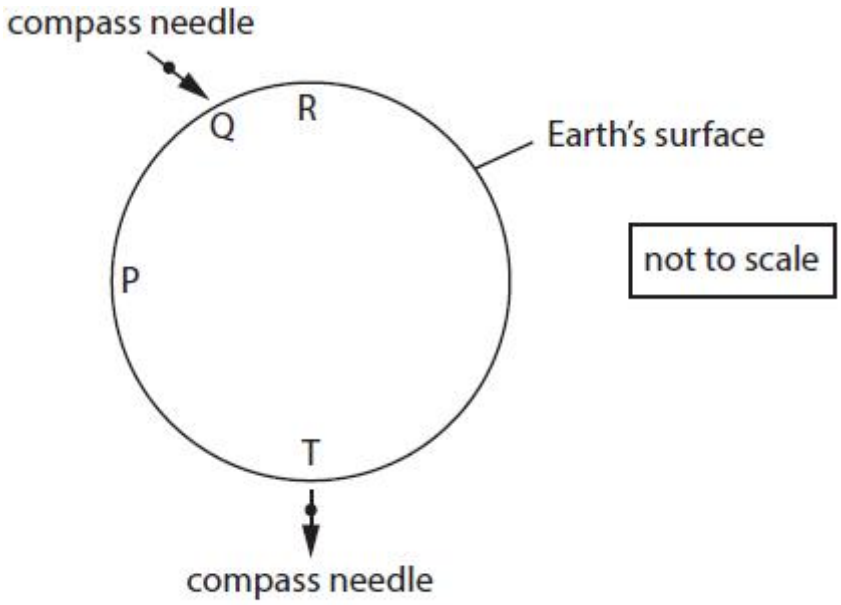

Figure 6

(i) A compass needle is placed at point P and another at point R, near to the Earth's surface.

On Figure 6, draw an arrow at point P and an arrow at point R to show the direction of the compass needle at each point.

(2)

(ii) Explain why the arrows point in the directions you have drawn in part (i).

You may draw on Figure 6 to help your answer.

(3)

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(Total for question = 5 marks)

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 ☒.

Figure 4 shows a copper wire between two magnetic poles.

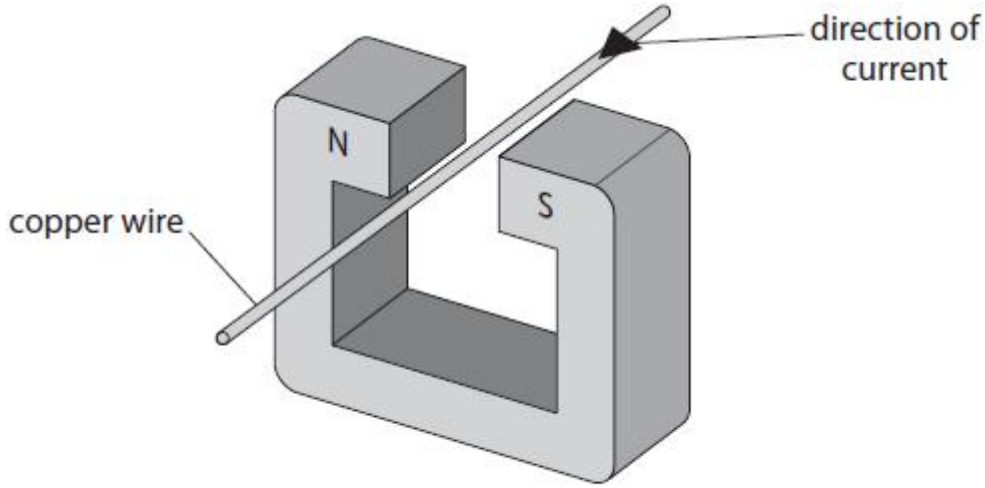

Figure 4

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.

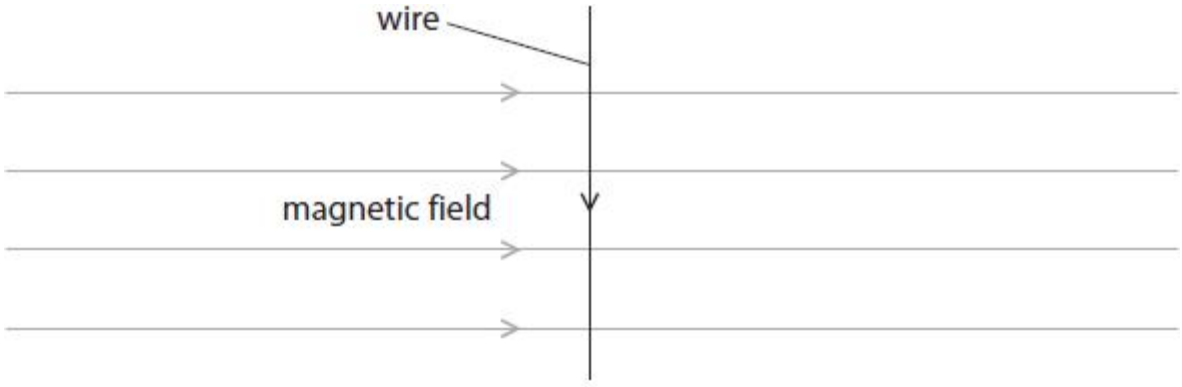

Figure 5

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