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.

Figure 12 shows the directions of some plotting compass needles placed at different points near the Earth's surface.

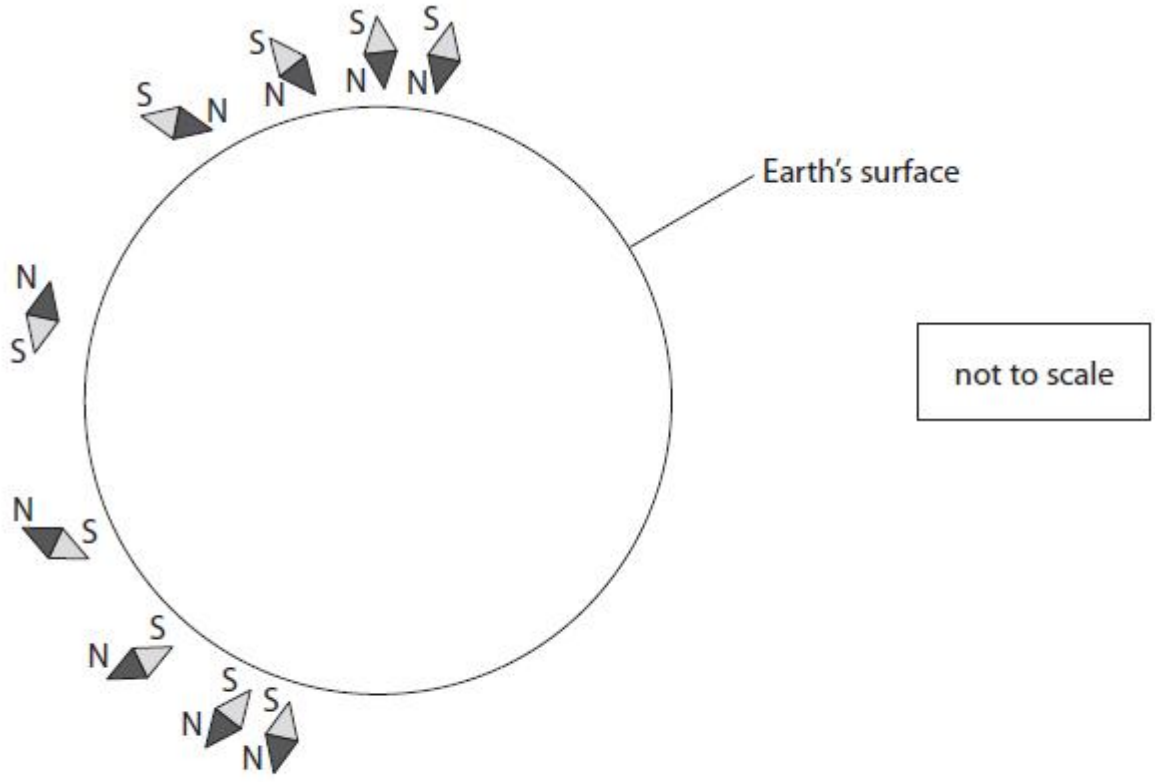

Figure 12

(i) Sketch, on Figure 12, the Earth's magnetic field outside and inside the Earth.

(2)

(ii) State which part of the Earth generates its magnetic field.

(1)

.....

.....

(Total for question = 3 marks)

Q2.

Figure 5 shows the directions of some plotting compass needles placed at different points near the Earth's surface.

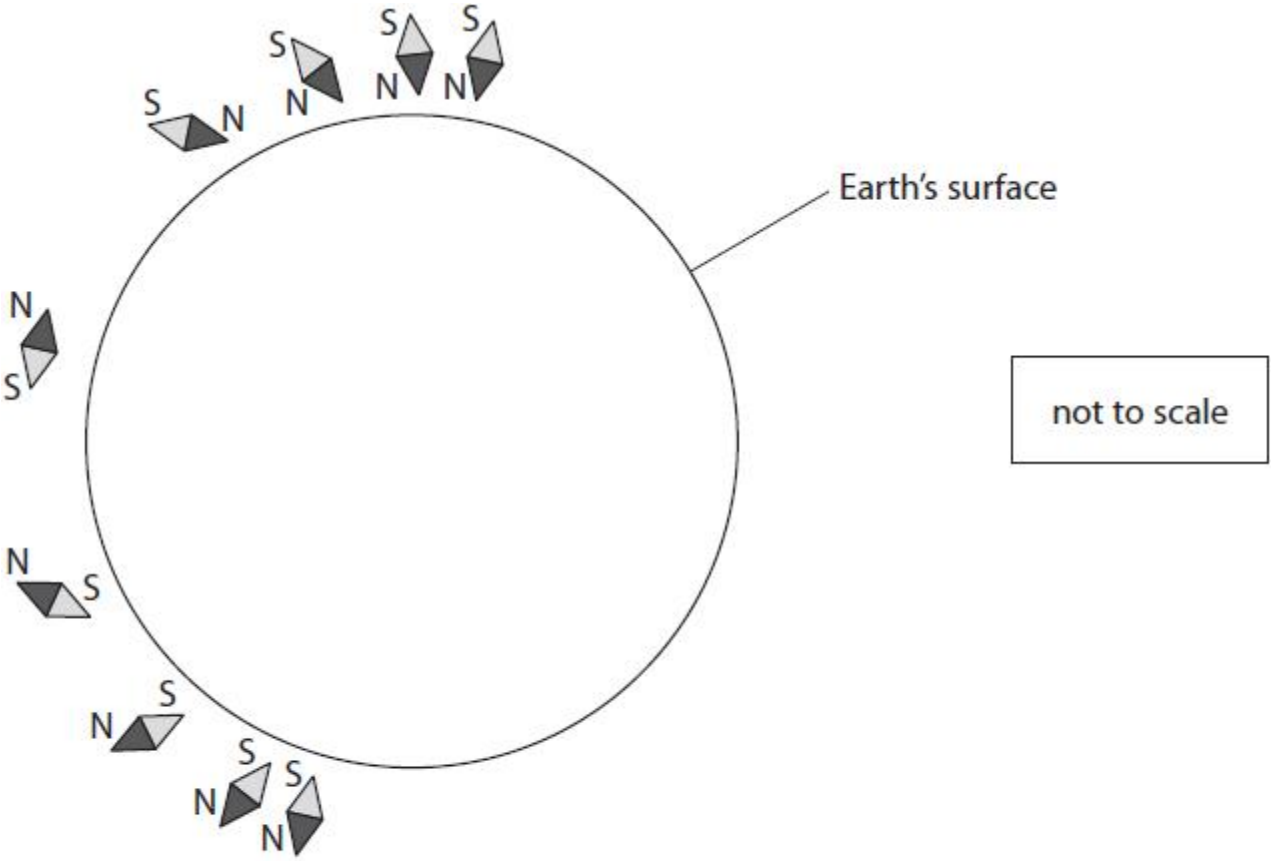

Figure 5

(i) Sketch, on Figure 5, the Earth's magnetic field outside and inside the Earth.

(2)

(ii) State which part of the Earth generates its magnetic field.

(1)

.....

.....

(Total for question = 3 marks)

Q3.

Figure 7 shows a wire placed between the poles of a U-shaped magnet.

The wire is connected to a resistor and a battery.

The wire carries a current in the direction shown.

The wire is perpendicular to the magnetic field of the magnet.

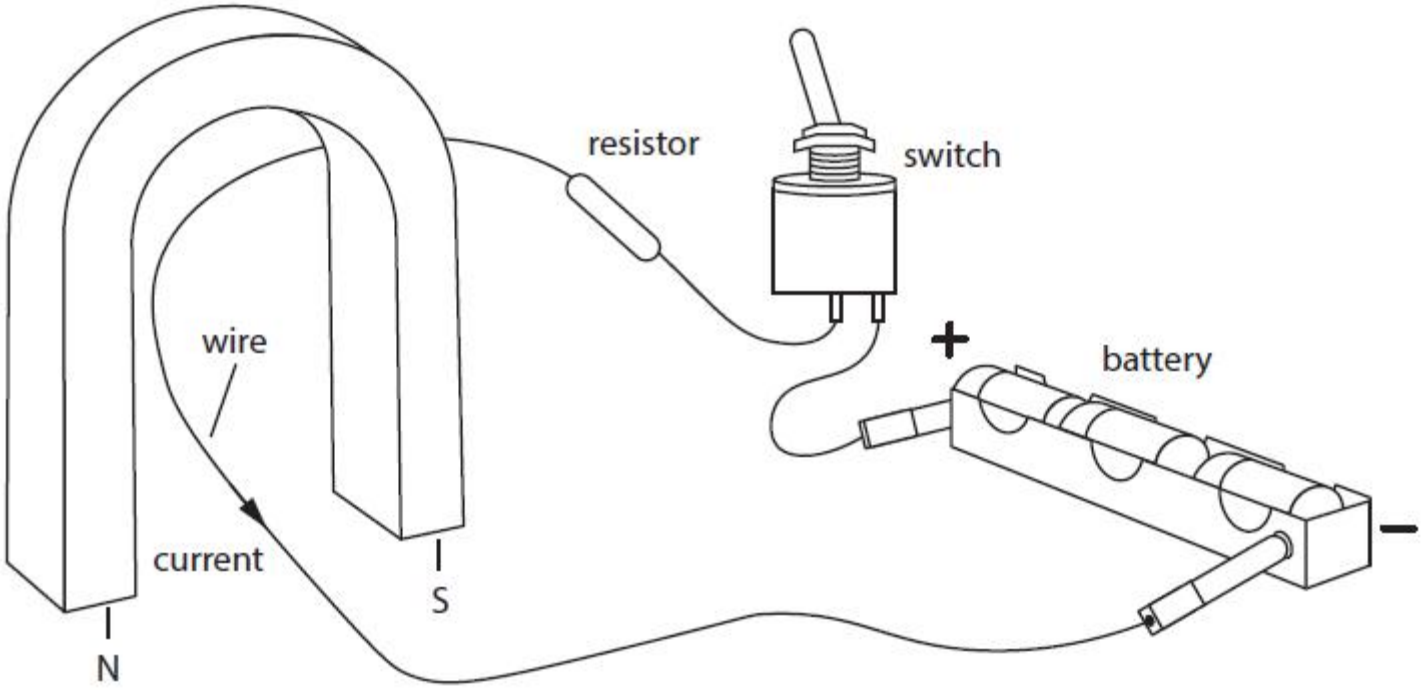

Figure 7

(i) Draw an arrow on Figure 7 to show the direction of the force, F, acting on the wire.

Label this arrow 'F'.

(1)

(ii) State **one** practical way of reversing the direction of force F.

(1)

.....

.....

(iii) In Figure 7

- current in the wire = 3.2 A
- length of wire in the magnetic field = 0.042 m
- magnitude of the force on the wire = 0.078 N

Calculate the magnitude of the magnetic flux density between the two poles of the magnet.

(2)

magnetic flux density = ... T

(Total for question = 4 marks)

Q4.

Figure 14 shows a wire placed between the poles of a U-shaped magnet.

The wire is connected to a resistor and a battery.

The wire carries a current in the direction shown.

The wire is perpendicular to the magnetic field of the magnet.

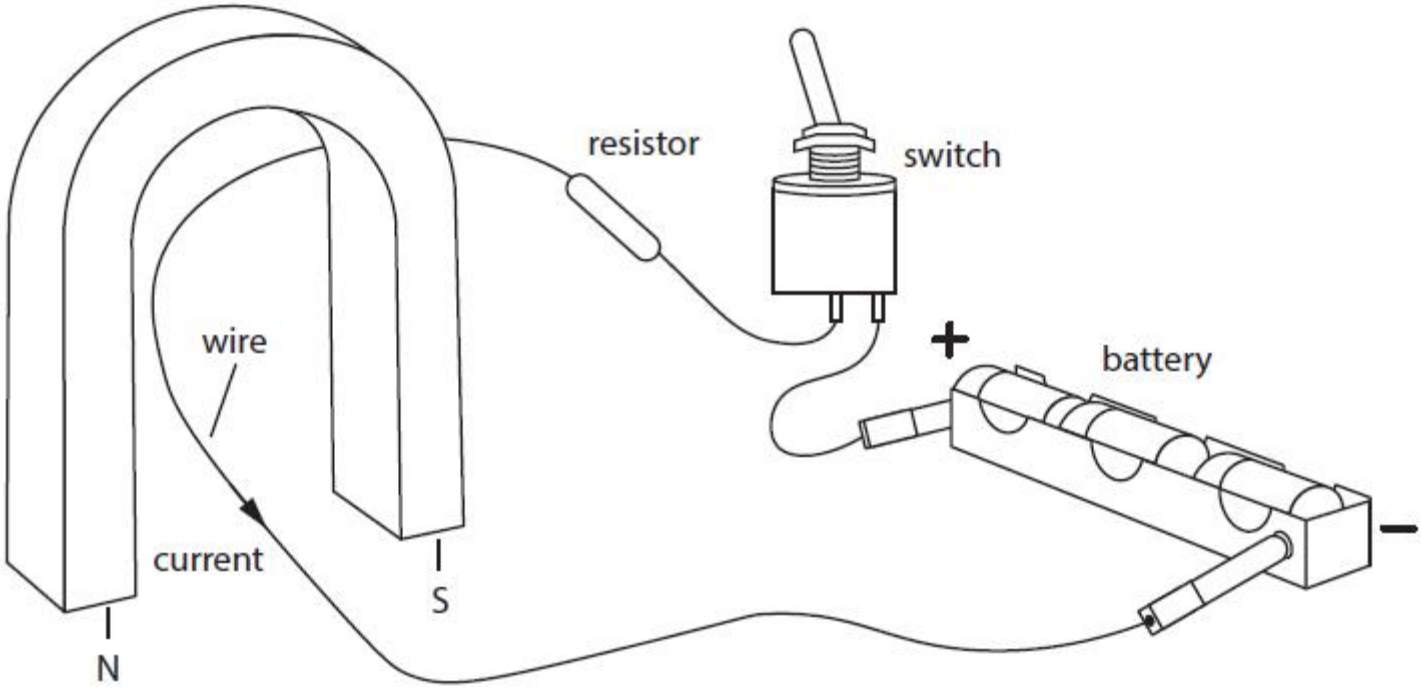

Figure 14

(i) Draw an arrow on Figure 14 to show the direction of the force, F, acting on the wire.

Label this arrow 'F'.

(1)

(ii) State **one** practical way of reversing the direction of force F.

(1)

.....

.....

(iii) In Figure 14

- current in the wire = 3.2 A
- length of wire in the magnetic field = 0.042 m
- magnitude of the force on the wire = 0.078 N

Calculate the magnitude of the magnetic flux density between the two poles of the magnet.

(2)

magnetic flux density = ... T

(Total for question = 4 marks)

Q5.

State how a uniform magnetic field may be obtained in a school laboratory.

(1)

.....

.....

(Total for question = 1 mark)

Q6.

State how a uniform magnetic field may be obtained in a school laboratory.

(1)

.....

.....

(Total for question = 1 mark)

Q7.

Figure 10 shows a current-carrying wire between the poles of a magnet.

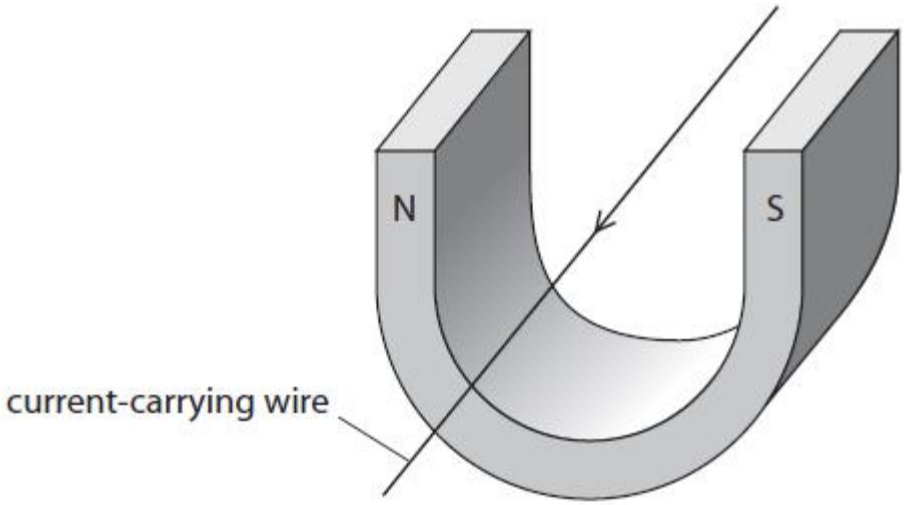

Figure 10

(i) The magnet and the wire each experience a force when there is a current in the wire.

(2)

1 State the direction of the force on the wire.

.....

2 State the direction of the force on the magnet.

.....

(ii) The force on the wire is 0.15 N.

The current in the wire is 2.7 A.
The magnet produces a field with a magnetic flux density of 0.50 T.
Calculate the length of the wire in the magnetic field.
Use an equation selected from the list of equations given at the end of the question paper.

(2)

length of the wire in the magnetic field = ... m

(Total for question = 4 marks)