Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic: Magnetism And Electromagnetism (High Demand Questions)

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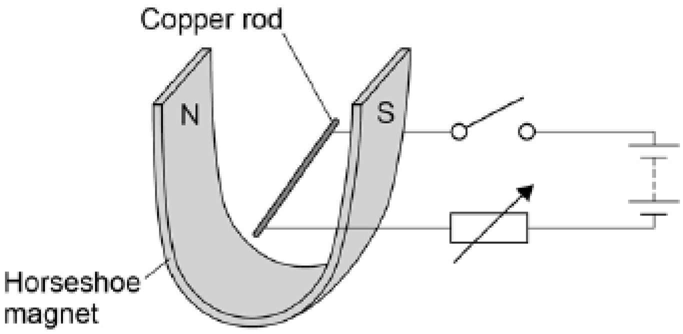
Name of the Student:____
Max. Marks : 20 Marks **Time : 20 Minutes**

Q1.

A teacher used the equipment shown in the figure below to demonstrate the motor effect.



(a) Describe how Fleming's left-hand rule can be used to determine the direction in which the rod will move when the switch is closed, and state the direction.

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(4)

(b) Increasing the current can increase the force acting on the copper rod.

Give **one** other way in which the size of the force acting on the copper rod could be increased.

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(1)

(c) The copper rod in the figure above has a length of 7 cm and a mass of 4×10^{-4} kg.

When there is a current of 1.12 A the resultant force on the copper rod is 0 N.

Calculate the magnetic flux density.

Gravitational field strength = 9.8 N / kg

____

Magnetic flux density = ___________________ T

(5)

(Total 10 marks)

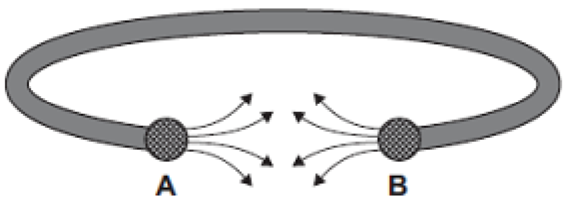
Q2.

(a) Some people wear magnetic bracelets to relieve pain.

Figure 1 shows a magnetic bracelet.

There are magnetic poles at both **A** and **B**.
Part of the magnetic field pattern between **A** and **B** is shown.

Figure 1



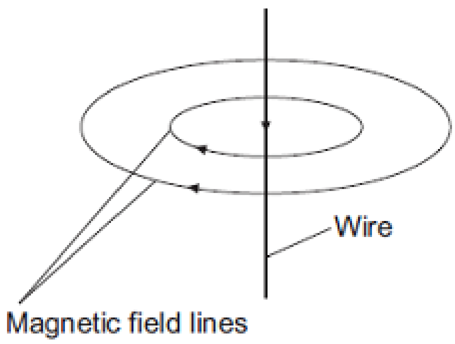
What is the pole at **A**? ________________________

What is the pole at **B**? ________________________

(1)

(b) **Figure 2** shows two of the lines of the magnetic field pattern of a current-carrying wire.

Figure 2



The direction of the current is reversed.

What happens to the direction of the lines in the magnetic field pattern?

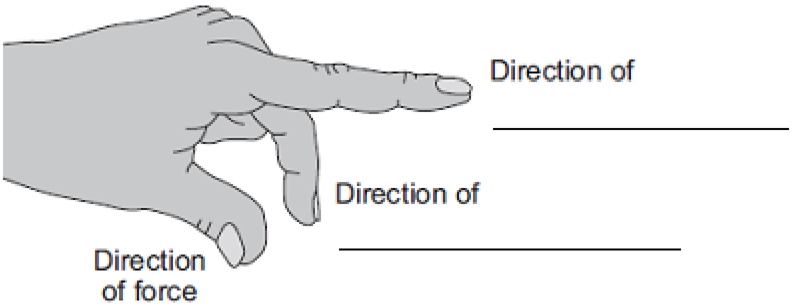
____

(1)

(c) Fleming's left-hand rule can be used to identify the direction of a force acting on a current-carrying wire in a magnetic field.

(i) Complete the labels in **Figure 3**.

Figure 3

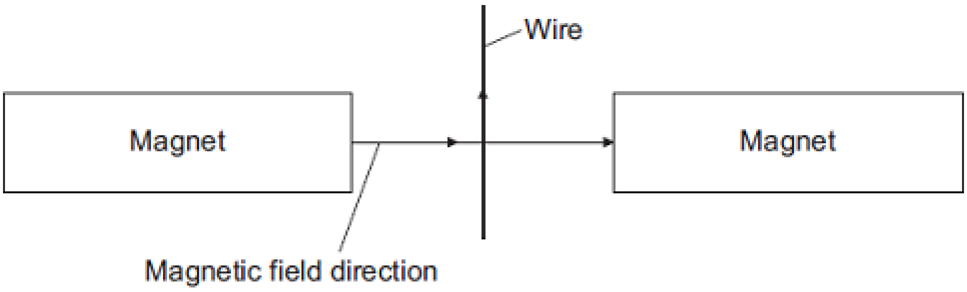


(2)

(ii) **Figure 4** shows:

- the direction of the magnetic field between a pair of magnets
- the direction of the current in a wire in the magnetic field.

Figure 4



In which direction does the force on the wire act?

____

(1)

(iii) Suggest **three** changes that would **decrease** the force acting on the wire.

1. ____

2. ____

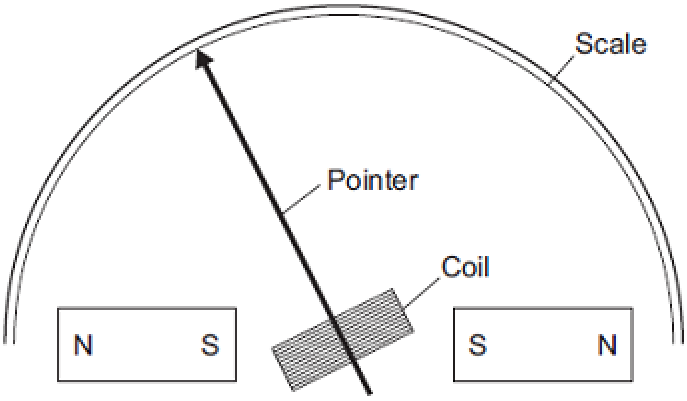
3. ____

(3)

(d) **Figure 5** shows part of a moving-coil ammeter as drawn by a student.

The ammeter consists of a coil placed in a uniform magnetic field.
When there is a current in the coil, the force acting on the coil causes the coil to rotate and the pointer moves across the scale.

Figure 5



(i) The equipment has **not** been set up correctly.

What change would make it work?

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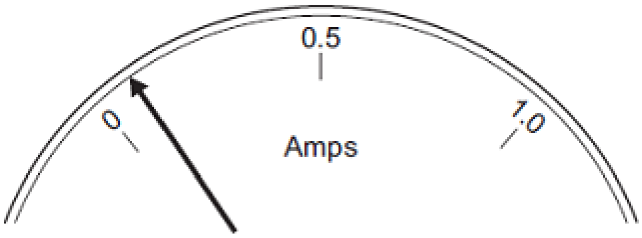
(1)

(ii) **Figure 6** shows the pointer in an ammeter when there is no current.

Figure 6



What type of error does the ammeter have?

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(1)
(Total 10 marks)