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

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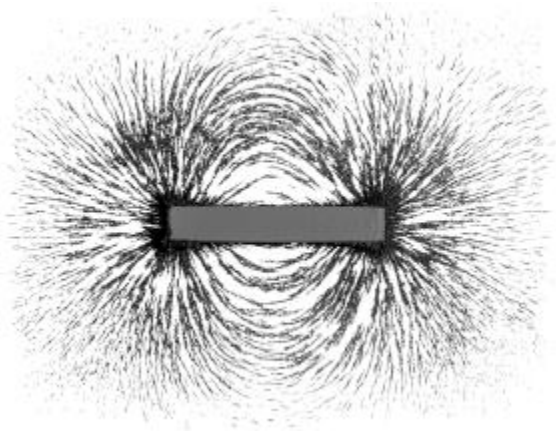
Name of the Student:_____
Max. Marks : 24 Marks **Time : 24 Minutes**

Q1.

Figure 1 shows iron filings sprinkled around a bar magnet**.**

Figure 1



(a) Why are the iron filings attracted to the bar magnet?

Tick (✓) **one** box.

Iron is a metal. ☐

Iron is charged. ☐

Iron is heavy. ☐

Iron is magnetic. ☐

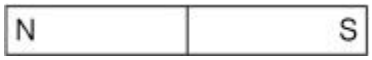
(1)

(b) **Figure 2** shows a bar magnet.

Draw magnetic field lines to show the magnetic field pattern around the bar magnet.

You should add arrows to the field lines to show the direction of the magnetic field.

Figure 2



(2)

(c) **Figure 3** shows two bar magnets.

Figure 3

The magnets attract each other.

What conclusion can be made about the two poles marked **X** and **Y**?

Tick (✓) **one** box.

They are both north poles. ☐

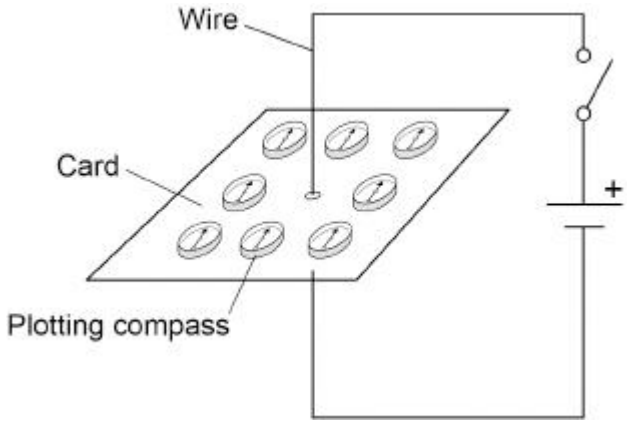
They are both south poles. ☐

They are opposite poles. ☐

(1)

Figure 4 shows some plotting compasses around a wire. There is no current in the wire.

Figure 4



(d) Why do the plotting compasses all point in the same direction?

_____

_____

(1)

(e) When the switch is closed there is a current in the wire.

The current creates a magnetic field.

What shape are the magnetic field lines around the wire?

Tick (✓) **one** box.

Circular	☐
Rectangular	☐
Square	☐
Triangular	☐

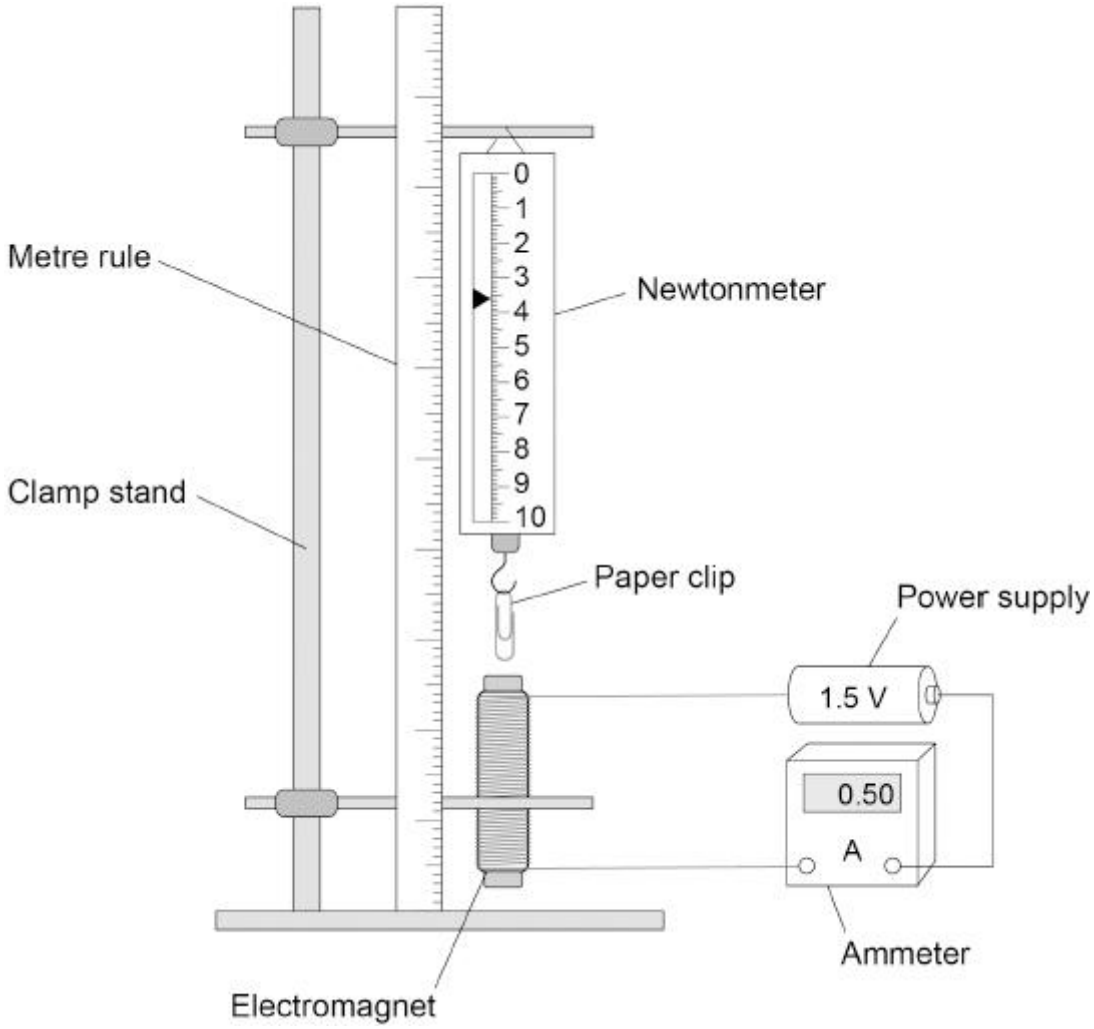
(1)

A student investigated the force exerted by an electromagnet on a paper clip.

The student varied the distance between the paper clip and the electromagnet.

Figure 5 shows the equipment used.

Figure 5



The student recorded the reading on the newtonmeter for several different distances.

(f) The current in the electromagnet was the same for each distance.

Complete the sentence.

Choose the answer from the box.

a control	**the dependent**	**the independent**

In the investigation, the current was _____ variable.

(1)

(g) What is the size of the downward force on the paper clip in **Figure 5**?

Force = _____ N

(1)

(h) The distance between the paper clip and the electromagnet is **increased**.

What happens to the size of the downward force?

_____

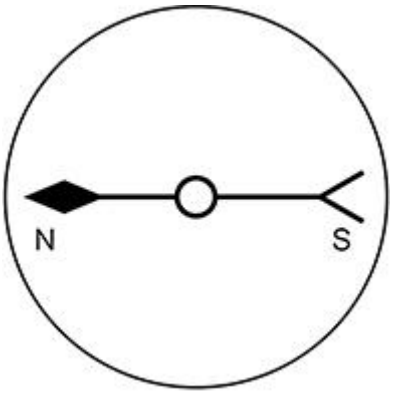
(1)

(Total 9 marks)

Q2.

Figure 1 shows a compass.

Figure 1



(a) Why does the compass always point in the same direction when it is **not** near a magnet?

Tick (✓) **one** box.

The compass is not magnetic. ☐

The Earth has a magnetic field. ☐

There is no force acting on the compass. ☐

(1)

(b) What material could the needle of the compass be made from?

Tick (✓) **one** box.

Aluminium ☐

Copper ☐

Plastic ☐

Steel ☐

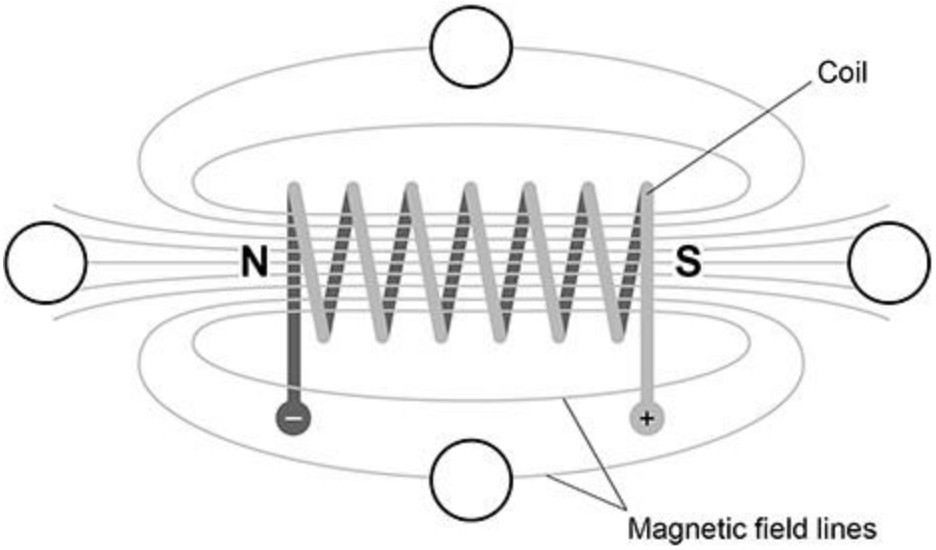
(1)

Figure 2 shows a coil of wire.

There is a current in the coil.

The circles show the position of four compasses.

Figure 2



(c) Which statement describes the magnetic field around the coil?

Tick (✓) **one** box.

The field has the same strength at all points. ☐

The field is stronger further away from the coil. ☐

The field is strongest at the ends of the coil. ☐

(1)

(d) Draw **one** arrow in **each** circle on **Figure 2** to show the direction of the magnetic field at that point.

(2)

(e) Give **two** ways the magnetic field around the coil could be made stronger.

1 _____

_____

2 _____

_____

(2)

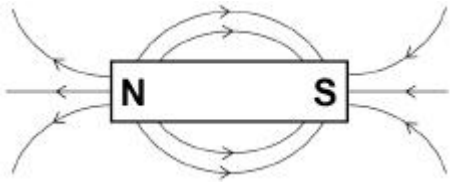
(Total 7 marks)

Q3.

Magnets attract some metals.

(a) Which diagram shows the correct magnetic field pattern for a bar magnet?

Tick (✓) **one** box.



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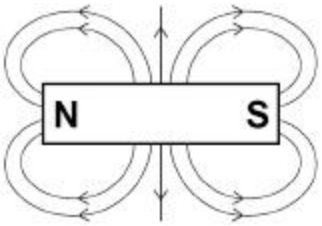

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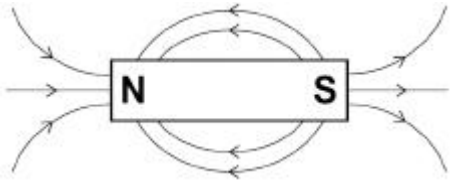

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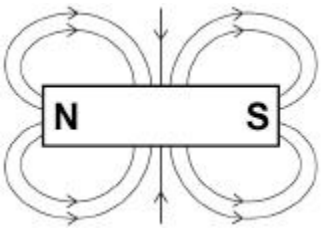


☐

(1)

Figure 1 shows an iron bar near a permanent magnet.

Figure 1

The iron bar becomes an induced magnet.

(b) Label the poles on the iron bar.

(1)

(c) The magnet is turned around so that the north pole is closest to the iron bar.

Which statement about the iron bar is true?

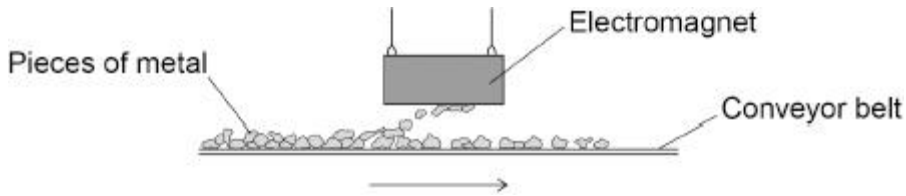
Tick (✓) **one** box.

The iron bar does not experience a magnetic force.	☐
The iron bar experiences a magnetic force of attraction.	☐
The iron bar experiences a magnetic force of repulsion.	☐

(1)

Figure 2 shows an electromagnet being used to separate pieces of different types of metal on a conveyor belt.

Figure 2



(d) Which **two** of the following types of metal would be attracted to the electromagnet?

Tick (✓) **two** boxes.

Aluminium	☐
Copper	☐
Magnesium	☐
Nickel	☐
Steel	☐

(2)

(e) What is an advantage of using an electromagnet instead of a permanent magnet to separate the types of metal?

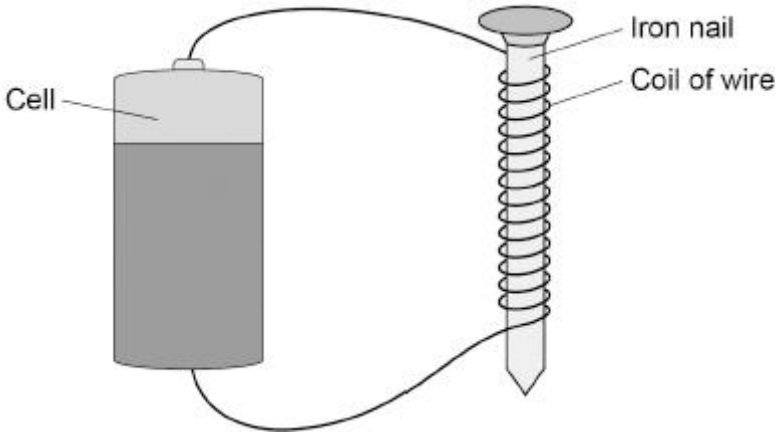
Tick (✓) **one** box.

An electromagnet attracts more types of metal than a permanent magnet.	☐
An electromagnet can be switched on and off.	☐
An electromagnet transfers less energy than a permanent magnet.	☐

(1)

Figure 3 shows a simple electromagnet.

Figure 3



(f) What is the purpose of the iron nail inside the coil of wire?

Tick (✓) **one** box.

The iron nail makes the magnetic field stronger.	☐
The iron nail reduces the magnetic field to zero.	☐
The iron nail reverses the magnetic field.	☐

(1)

(g) Which of the following would increase the strength of the electromagnet?

Tick (✓) **one** box.

Use a greater current.	☐

Use a shorter nail. ☐

Use a thinner wire. ☐

(1)

(Total 8 marks)