Electromagnetism – 2019 Nov IGCSE

1. 0625/32/O/N/19/No.11

(a) Identify which of the following metals can be permanently magnetised. Place a tick (✓) in the box next to any correct metal.

☐ aluminium

☐ copper

☐ steel

☐ tungsten

[1]

(b) Two metal rods are thought to be permanent magnets. Describe the test you would carry out to confirm that both rods are permanent magnets.

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.....

..... [2]

(c) **(i)** Describe how to make an electromagnet. You may draw a labelled diagram to help your answer.

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..... [3]

(ii) Suggest **two** factors that affect the strength of the magnetic field of an electromagnet.

1 .....

2 .....

[2]

[Total: 8]

2. 0625/33/O/N/19/No.9

Two bar magnets are placed next to each other as shown in Fig. 9.1.

Fig. 9.1

Magnet A is slowly moved towards magnet B. This causes magnet B to move away from magnet A.

(a) (i) On Fig. 9.1, suggest the poles of each bar magnet.

Label N and S on each of the magnets. [1]

(ii) State the term used to describe the direction of the forces acting between magnet A and magnet B.

..... [1]

(iii) Magnet B is removed and replaced with a steel bar of the same size.

Describe what happens when magnet A is slowly moved towards the steel bar.

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..... [1]

(b) A student makes an electromagnet. He places an iron rod inside a coil of wire and connects the coil to a d.c. power supply, as shown in Fig. 9.2.

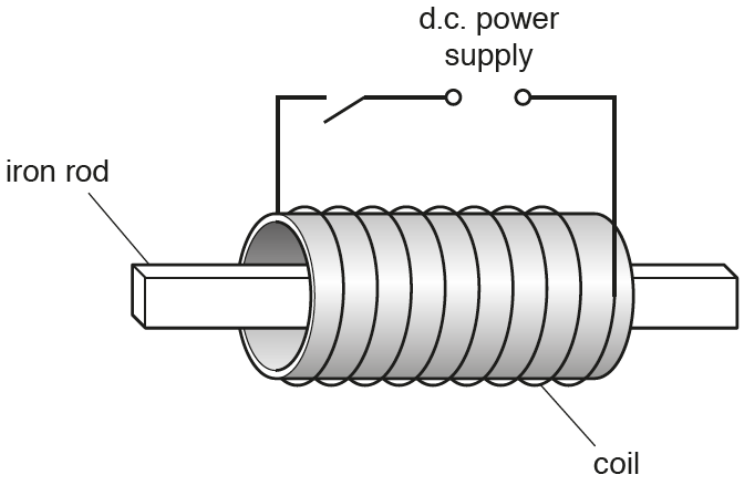

Fig. 9.2

(i) The switch is closed so there is a current in the coil. The S pole of a bar magnet is placed near to each end of the iron rod in turn.
Suggest what happens at each end of the iron rod and give a reason for your predictions.

Suggestions .....

.....

.....

reason .....

.....

[2]

(ii) The student removes the iron rod from the coil. The student places a steel rod inside the coil. He closes the switch and the steel rod becomes a magnet. He then opens the switch.

The student removes the steel rod and moves it close to the iron rod.

Describe and explain what happens as the two rods are moved close together.

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..... [2]

(iii) State **one** use for an electromagnet.

..... [1]

[Total: 8]