Electromagnetism – 2020 IGCSE 0625

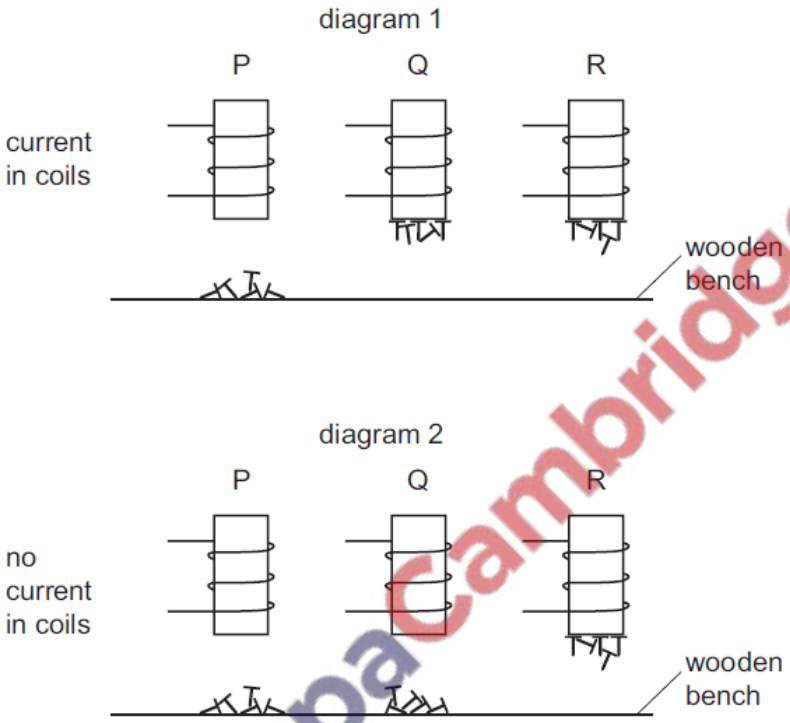
1. March/2020/Paper_12/No.28

The diagrams show three different metal rods P, Q and R, inside coils of wire.

Small iron nails are placed on a wooden bench under the rods.

Diagram 1 shows the situation when there are electric currents in the wires.

Diagram 2 shows the situation when the currents are switched off.



Which row correctly identifies the metal rods?

	P	Q	R
A	copper	soft iron	steel
B	soft iron	copper	steel
C	steel	soft iron	copper
D	copper	steel	soft iron

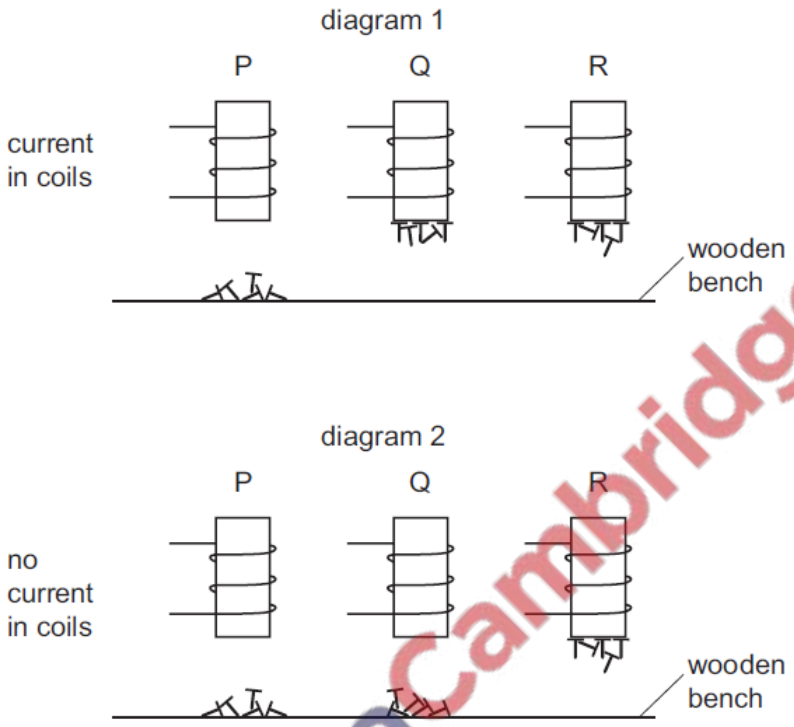
2. March/2020/Paper_22/No.29

The diagrams show three different metal rods P, Q and R, inside coils of wire.

Small iron nails are placed on a wooden bench under the rods.

Diagram 1 shows the situation when there are electric currents in the wires.

Diagram 2 shows the situation when the currents are switched off.



Which row correctly identifies the metal rods?

	P	Q	R
A	copper	soft iron	steel
B	soft iron	copper	steel
C	steel	soft iron	copper
D	copper	steel	soft iron

3. March/2020/Paper_32/No.10

Fig. 10.1 shows an arrangement for making an electromagnet.

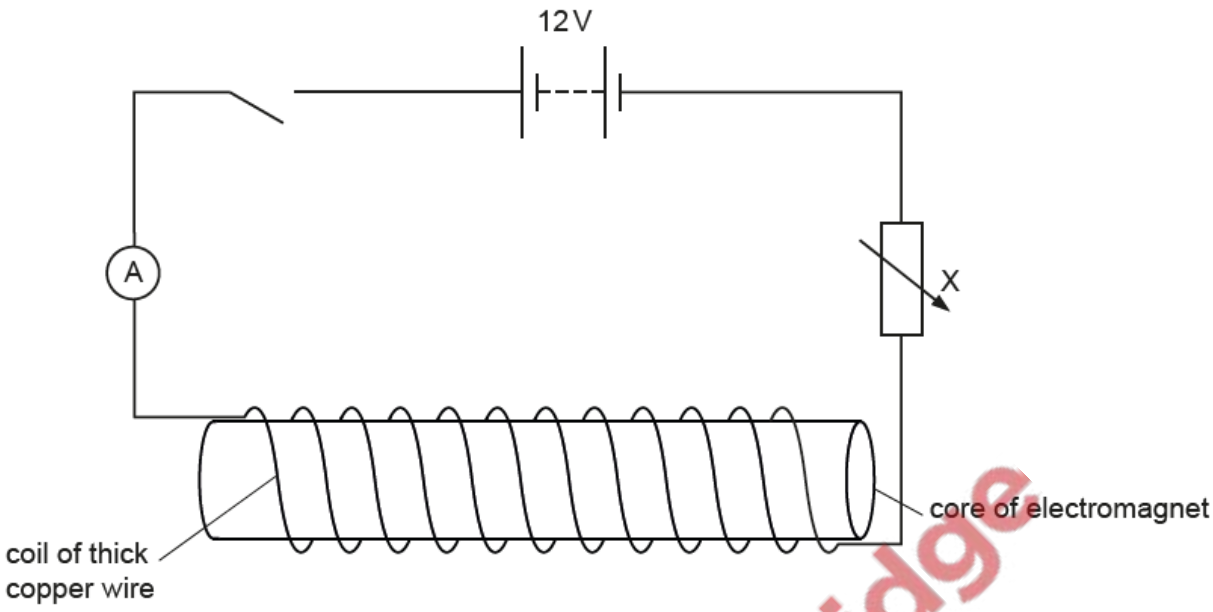


Fig. 10.1

(a) (i) State a material which is suitable for the core of the electromagnet.

..... [1]

(ii) State the name for component X in Fig. 10.1.

..... [1]

(iii) Describe and explain how component X varies the strength of the electromagnet.

.....

.....

..... [2]

(b) The switch is closed. The reading on the ammeter is 1.5A.

Calculate the resistance of the circuit.

resistance = ... Ω [3]

[Total: 7]

4. June/2020/Paper_23/No.27

The diagrams show a magnetised steel rod inside a solenoid connected to a potentiometer.

In diagram 1, the potentiometer is connected to a d.c. power supply.

In diagram 2, the potentiometer is connected to an a.c. power supply.

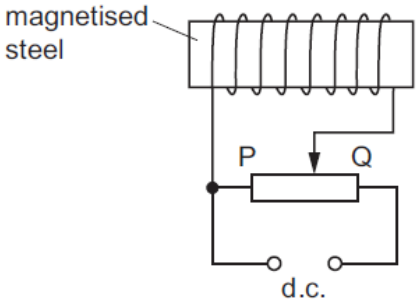


diagram 1

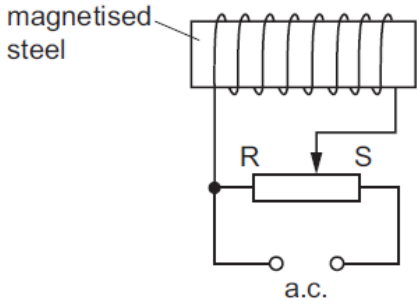


diagram 2

Which action would demagnetise the piece of steel?

A In diagram 1, move the potentiometer slide from P to Q.

B In diagram 1, move the potentiometer slide from Q to P.

C In diagram 2, move the potentiometer slide from R to S.

D In diagram 2, move the potentiometer slide from S to R.

5. June/2020/Paper_41/No.7

An electromagnet consists of a solenoid X that is made of copper wire. The solenoid contains an iron core.

(a) Explain why:

(i) the structure of copper makes it a suitable material for the wire

.....

.....

..... [2]

(ii) iron is a suitable material for the core of an electromagnet.

.....

.....

..... [2]

(b) Fig. 7.1 shows the electromagnet inside a second solenoid Y.

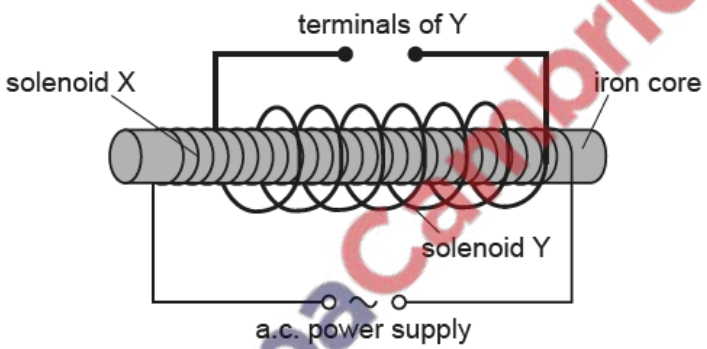


Fig. 7.1

(i) Describe and explain what happens in solenoid Y when solenoid X is connected to an alternating current (a.c.) power supply.

.....

.....

.....

..... [3]

(ii) A switch and a lamp are connected in series with the terminals of solenoid Y. When the switch is closed, the lamp lights up at normal brightness.

Describe and explain what happens to the current in solenoid X when the switch is closed.

.....

.....

..... [2]

[Total: 9]