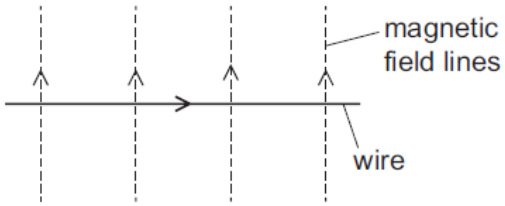
Electromagnetism – 2020 IGCSE 0625

1. Nov/2020/Paper_11/No.36

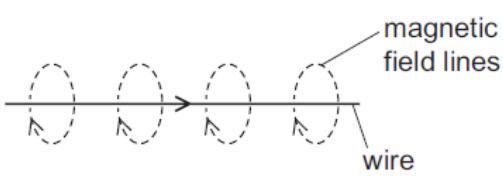
The diagrams show a current-carrying wire with an arrow in the direction of the current.

Which diagram shows the magnetic field produced by the current?

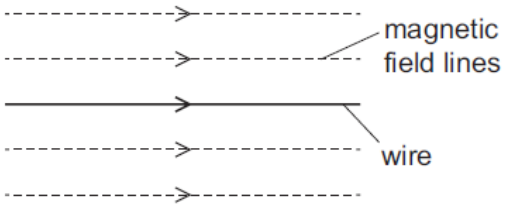
A



B



C

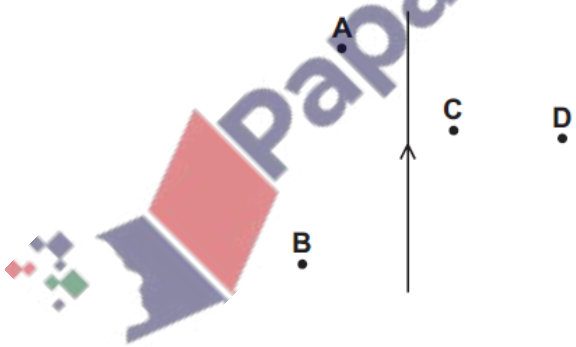


D

2. Nov/2020/Paper_21/No.36

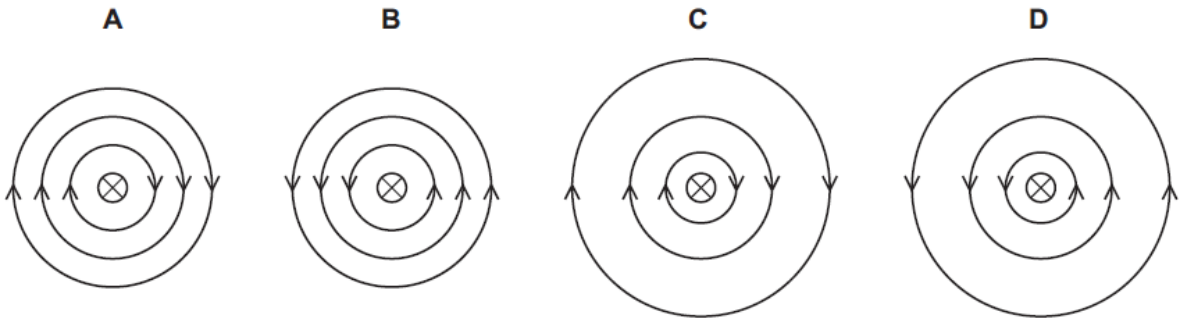
The diagram shows part of a long current-carrying conductor.

At which point is the magnetic field strongest?



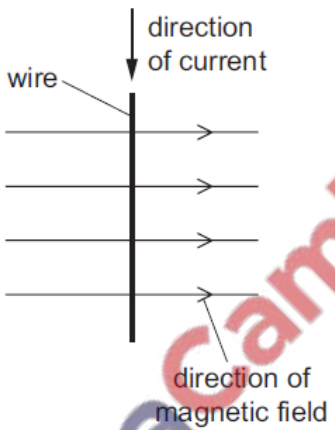
3. Nov/2020/Paper_22/No.29

Which diagram represents the strength and direction of the magnetic field around a current-carrying conductor? (The direction of the current is into the page.)



4. Nov/2020/Paper_23/No.36

The diagram shows a wire carrying a current in the direction shown. There is a magnetic field acting from left to right. The wire experiences a force acting out of the page.



The current is now reversed.

In which direction does the force on the wire now act?

A into the page

B out of the page

C to the left

D to the right

5. Nov/2020/Paper_33/No.9

(a) A clamp and stand hold a soft-iron bar above a bench. A coil of wire is wrapped round the soft-iron bar. The coil of wire is part of an electric circuit. Fig. 9.1 shows the arrangement.

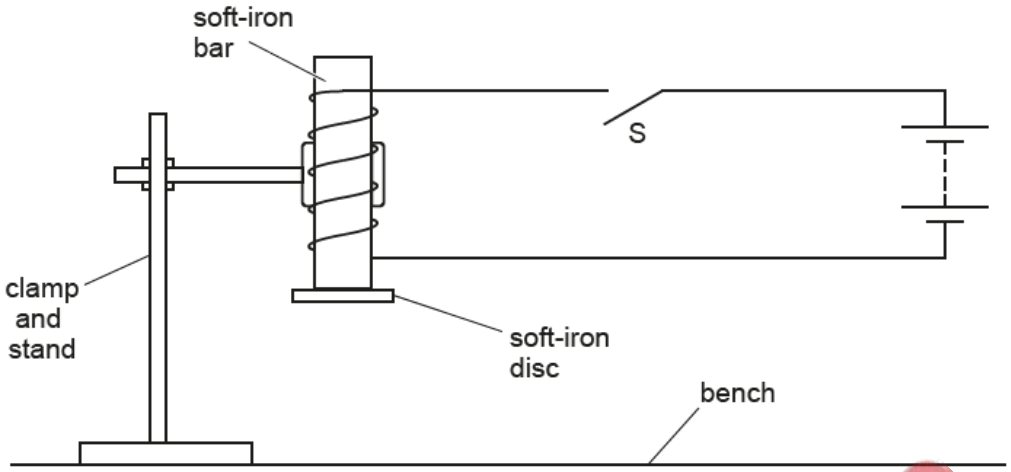


Fig. 9.1

Switch S is closed. A student holds a soft-iron disc close to the bar and releases the disc. The disc becomes attached to the bar as shown in Fig. 9.1.

Explain why the soft-iron disc is attracted to the soft-iron bar.

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(b) The circuit in Fig. 9.1 is used to operate a bell in a different circuit, as shown in Fig. 9.2.

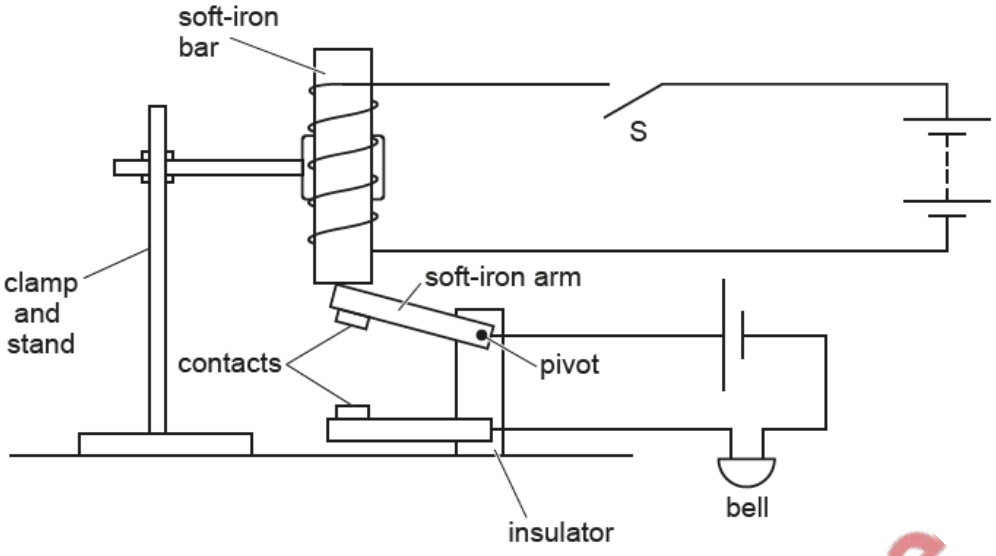

Fig. 9.2

(i) Switch S is closed. The soft-iron arm is attracted to the soft-iron bar.

Explain why the bell operates when the switch S is opened.

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..... [4]

(ii) The switch S is closed. The soft-iron arm is attracted to the soft-iron bar.

The battery in the circuit containing the soft-iron bar becomes fully discharged.

State and explain whether the bell operates.

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[Total: 8]

6. Nov/2020/Paper_43/No.10

Fig. 10.1 shows a relay.

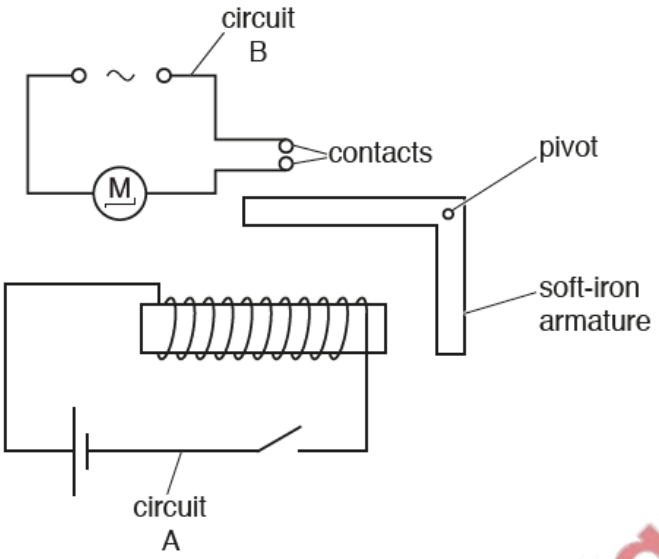

Fig. 10.1

(a) The switch in circuit A is closed. Describe how this operates the motor in circuit B.

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..... [3]

(b) The switch in circuit A is opened. The soft-iron armature is replaced with a steel armature. The switch in circuit A is closed.

Explain what happens when the switch in circuit A is then opened.

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..... [2]

[Total: 5]