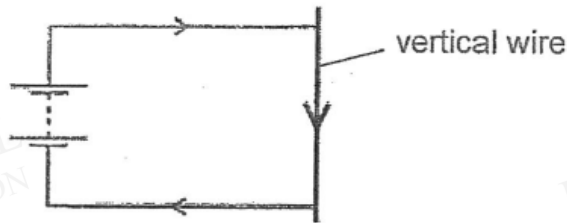


O Level Combined Physics MCQs

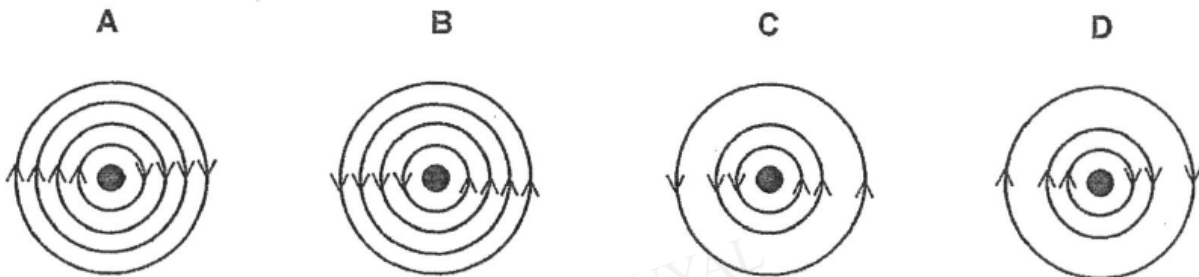
Electromagnetism Test 1.0

Q1

A straight vertical wire carries a current flowing down its length.



What is the pattern of the magnetic field around the wire, when seen from above?

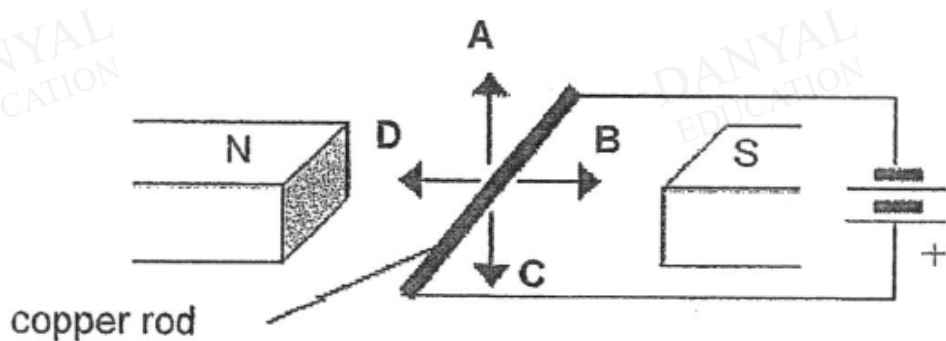


Q2

The diagram shows a copper rod within a magnetic field.

When the switch is closed, a current flows through the rod.

In which direction will the rod experience a force?



Q3

Consider the following actions:

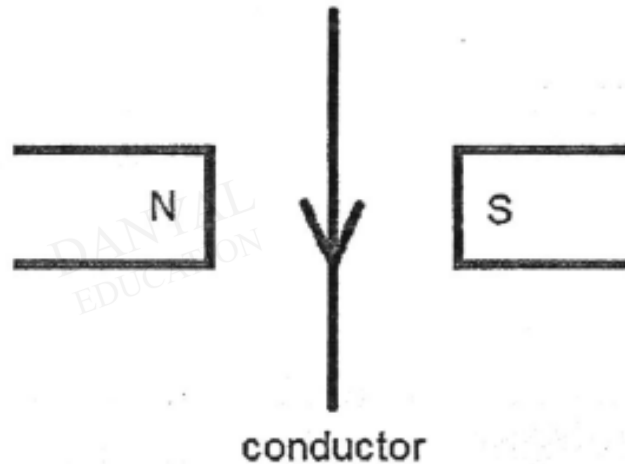
- 1 pull the steel bar slowly out of the solenoid
- 2 connect direct current to the solenoid
- 3 connect alternating current to the solenoid
- 4 place the magnetised steel bar into the solenoid
- 5 switch off the current supply
- 6 set up the solenoid in the east-west direction
- 7 set up the solenoid in the north-south direction

Which sequence is correct to effectively demagnetise a steel bar using electrical method?

- (A) 7 → 4 → 2 → 5 (C) 6 → 4 → 3 → 1
(B) 7 → 2 → 4 → 1 (D) 6 → 3 → 4 → 5

Q4

The diagram shows current-carrying conductor placed in a magnetic field.

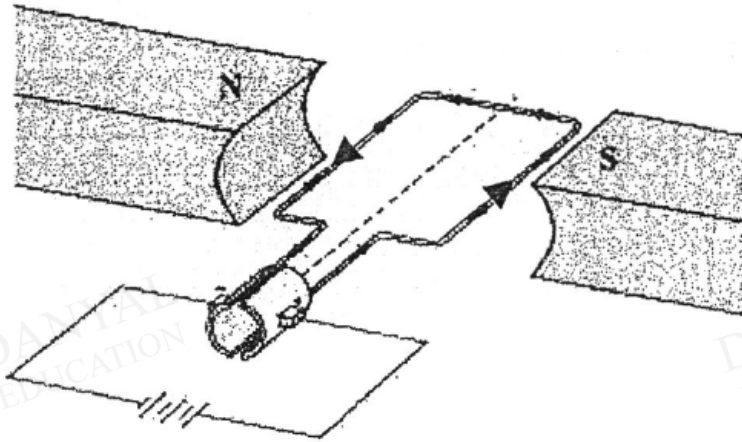


What is the direction of the force acting on the current-carrying conductor?

- (A) into the page
(B) out of the page
(C) towards the top of the page
(D) towards the bottom of the page

Q5

The following diagram shows a DC motor.



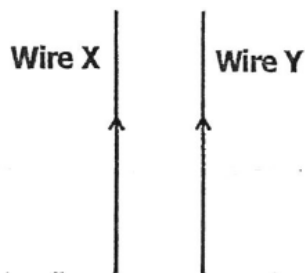
Which one of the following describes the motion of the coil?

- A moves upwards
- B moves downwards
- C rotates clockwise
- D rotates anti-clockwise

Q6

Two current-carrying wires are arranged in parallel as shown.

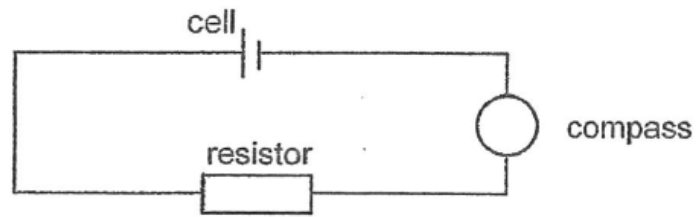
What is the direction of the electromagnetic force acting on each wire?



- | | <u>Wire X</u> | <u>Wire Y</u> |
|---|---------------|---------------|
| A | To the left | To the right |
| B | To the left | To the left |
| C | To the right | To the left |
| D | To the right | To the right |

Q7

The diagram below shows a compass placed above a current carrying wire.



In which direction will the compass point? Ignore effects of the Earth's magnetic field.



A



B



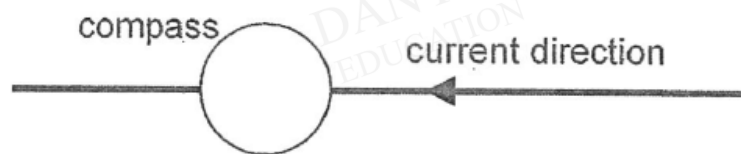
C



D

Q8

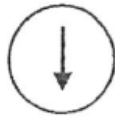
A plotting compass is placed on top of a current-carrying wire as shown below. Which of the following shows the compass needle's direction?



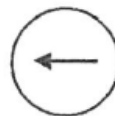
A



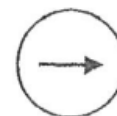
B



C

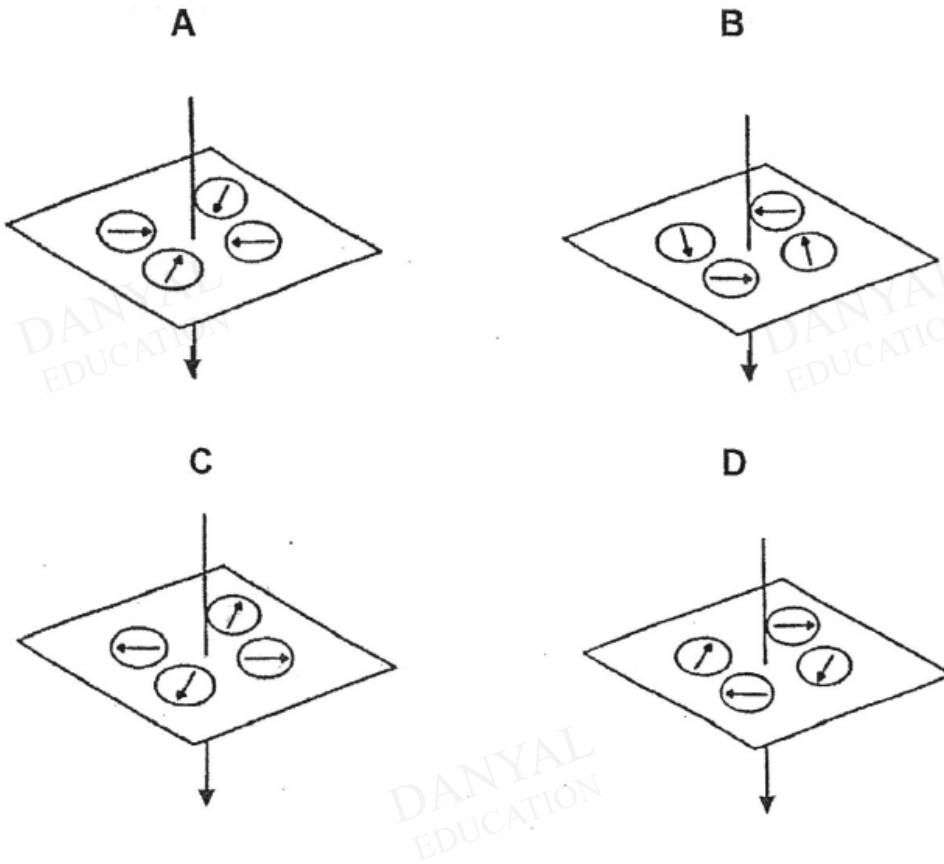


D



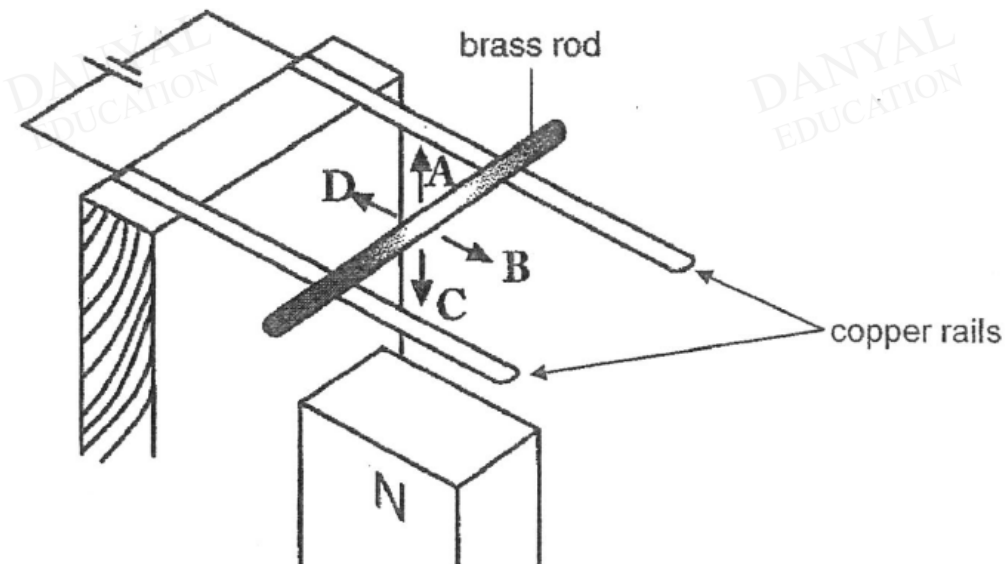
Q9

Which of the following correctly shows the direction of the plotting compasses when a current flows from the top to the bottom?



Q10

The diagram shows a brass rod supported on two copper rails which are connected to a battery. The north pole of the magnet is placed as shown beneath the rails. In which of the directions A, B, C or D does the brass experience a force?



Answers

Electromagnetism Test 1.0

Q1 D

Q2 C

Q3 C

Q4 B

Q5 C

Q6 C

Q7 B

Q8 A

Q9 D

Q10 B

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