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IGCSE PHYSICS 0625 · TOPICAL PAST PAPERS

Electromagnetism

Paper 1 — Multiple-Choice Questions (topical compilation)

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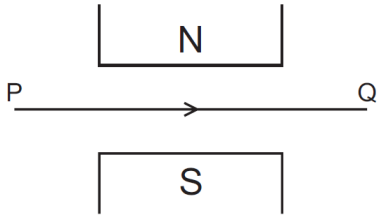
ELECTROMAGNETISM
PAPER 1 QUESTIONS

Force on a current-carrying conductor

QUESTION # 1: M/J 16 P12 Q33

33 The diagram shows a wire PQ between the N-pole and the S-pole of a magnet. There is a current in the wire in the direction of the arrow.



What is the direction of the force on the wire PQ?

A into the page

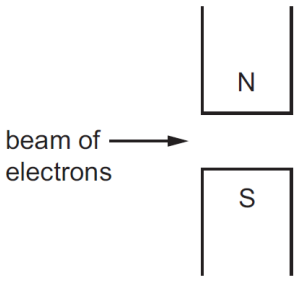
B out of the page

C towards the N-pole

D towards the S-pole

QUESTION # 2: M/J 18 P11 Q32

32 A horizontal beam of electrons passes between the two poles of a magnet.



In which direction is the beam deflected?

A into the page

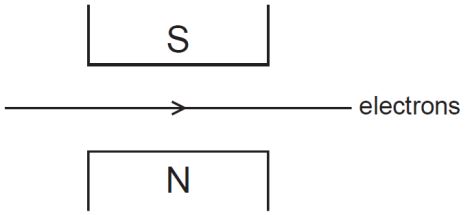
B out of the page

C towards the north pole

D towards the south pole

QUESTION # 3: M/J 19 P11 Q37

37 A beam of electrons travels through a vacuum. The beam passes between the poles of a magnet as shown.

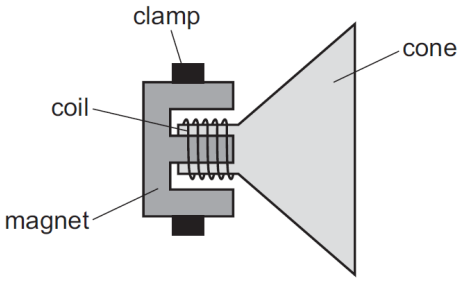


What is the direction of the conventional current and what is the direction of the magnetic field?

	direction of the conventional current	direction of the magnetic field
A	→	↓
B	→	↑
C	←	↓
D	←	↑

QUESTION # 4: M/J 20 P11 Q33

33 There is varying current in the coil of the loudspeaker shown. The loudspeaker is producing a sound. The magnet is clamped.



What is vibrating to produce the sound?

A coil only

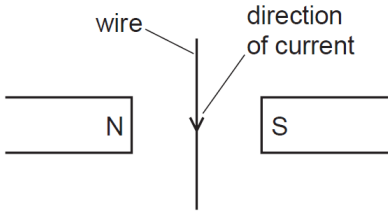
B cone only

C magnet only

D coil and cone

QUESTION # 5: O/N 16 P11 Q32

32 A current-carrying wire lies between the poles of two magnets, as shown.



What is the direction of the force on the wire?

A into the plane of the paper

B out of the plane of the paper

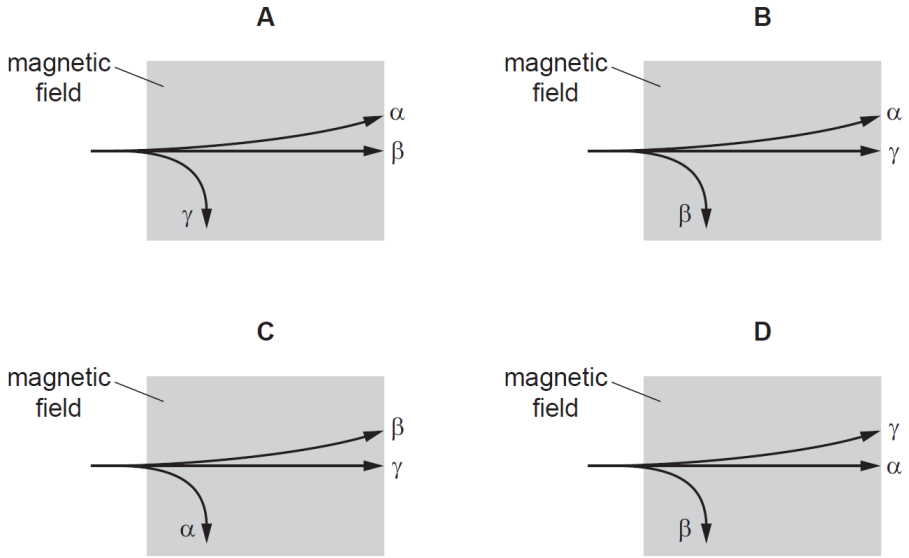
C towards the left

D towards the right

QUESTION # 6: O/N 17 P12 Q38

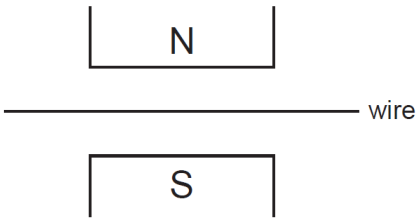
38 A beam, consisting of alpha-particles (α), beta-particles (β), and gamma rays (γ), passes into a magnetic field.

Which diagram shows their paths in the magnetic field?



QUESTION # 7: O/N 18 P11 Q33

33 A wire is placed in the magnetic field between the poles of a magnet, as shown.



When there is a current in the wire, it experiences a force.

Which change increases the size of this force?

A reverse both the direction of the current and the poles of the magnet

B reverse just the direction of the current

C use a stronger magnet

D use a thicker wire with the same current

The D.C. motor

QUESTION # 1: M/J 16 P11 Q35

35 A split-ring commutator is used in a simple d.c. motor. It reverses the current in the coil.

How often does it reverse the current?

A every quarter turn

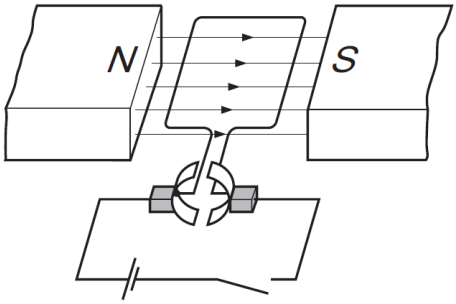
B every half turn

C every full turn

D every two turns

QUESTION # 2: M/J 16 P12 Q32

32 The diagram shows a simple d.c. motor.



The switch is closed and the coil rotates.

Which change makes the coil rotate in the opposite direction **and** at a faster rate?

A increase the current in the coil and increase the number of turns in the coil

B reverse both the magnetic field and the current in the coil

C reverse the magnetic field and decrease the current in the coil

D reverse the magnetic field and increase the current in the coil

QUESTION # 3: M/J 17 P12 Q36

36 What is the effect of using a split-ring commutator?

A it ensures that the current is the same in all parts of a series circuit

B it generates an alternating electric current

C it produces a force on a current-carrying coil

D it reverses the direction of the current in the coil of a motor

QUESTION # 4: M/J 19 P11 Q36

36 The coil of a simple motor lies between the poles of a permanent magnet. The coil rotates about its axis when there is a current in it.

What decreases the frequency of rotation of the coil?

A increasing the number of turns in the coil

B reversing the current

C using a lower voltage supply

D using a stronger magnet

QUESTION # 5: M/J 20 P12 Q39

39 A rectangular current-carrying coil is pivoted between the poles of an electromagnet.

Which action does **not**, on its own, increase the size of the turning effect exerted on the coil?

A increasing the current in the coils of the electromagnet

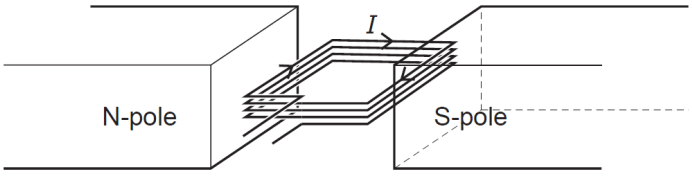
B increasing the current in the rectangular coil

C reversing the current in the electromagnet

D increasing the number of turns on the rectangular coil

QUESTION # 6: O/N 16 P11 Q33

33 A coil P of N turns is made from a length L of wire. The coil carries a current I when between two magnetic poles.



A similar coil Q of $2N$ turns is made from a length $2L$ of identical wire. It also carries a current I when between the two magnetic poles.

Which coil has the greater resistance and which coil experiences the greater turning effect?

	greater resistance	greater turning effect
A	P	P
B	P	Q
C	Q	P
D	Q	Q

QUESTION # 7: O/N 17 P12 Q33

33 Why is the coil of an electric motor wound on a soft-iron cylinder?

A to decrease the electric current

B to increase the electric current

C to reverse the magnetic field

D to strengthen the magnetic field