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IGCSE PHYSICS 0625 · TOPICAL PAST PAPERS

Simple Magnetism & Magnetic Fields

Paper 1 — Multiple-Choice Questions (topical compilation)

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MAGNETISM AND ELECTROMAGNETISM

PAPER 1 QUESTIONS

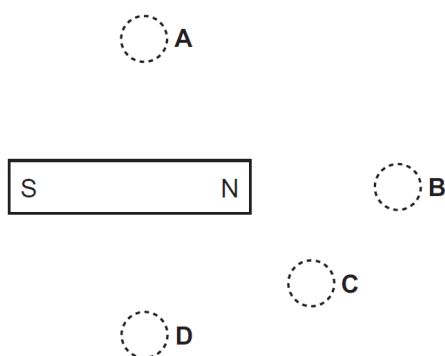
Laws of magnetism

QUESTION # 1: M/J 16 P11

- 27 Four plotting compasses are placed near a bar magnet. You may ignore any effects of the Earth's magnetic field.

One compass appears like this .

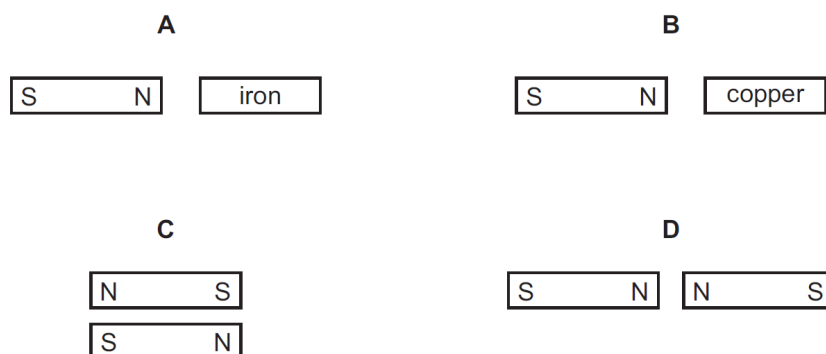
What is a possible position for this compass?



QUESTION # 2: M/J 20 P11

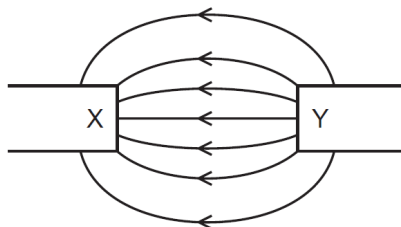
- 32 Bar magnets and various non-magnetic and demagnetised metal bars are placed in the different arrangements shown.

In which arrangement do the bars repel?



QUESTION # 3: O/N 17 P11

- 26** The diagram shows the pattern and the direction of the magnetic field between two magnetic poles X and Y.



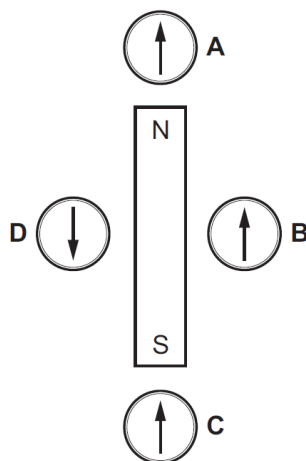
Which types of pole are X and Y?

	X	Y
A	N-pole	N-pole
B	N-pole	S-pole
C	S-pole	N-pole
D	S-pole	S-pole

QUESTION # 4: O/N 17 P12

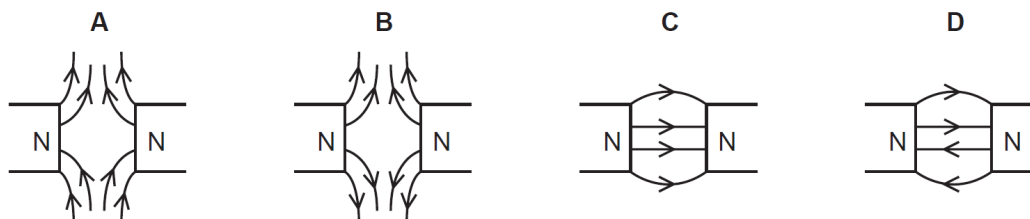
- 26** A compass needle is moved to different places around a strong bar magnet.

Which position shows **incorrectly** the direction of the compass needle?

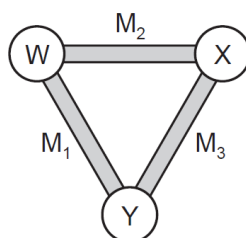


QUESTION # 5: O/N 18 P12

- 28 Which diagram shows the magnetic field pattern in the region between the N-poles of the two bar magnets?

**QUESTION # 6: O/N 19 P11**

- 30 Magnets M_1 , M_2 and M_3 are joined by iron balls W, X and Y as shown.



Magnetic poles are induced in the iron balls W and X as shown.

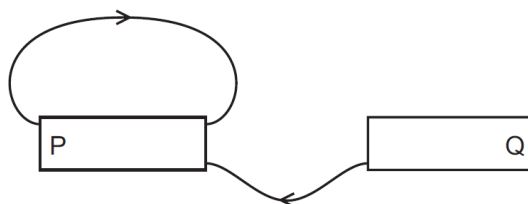


Which diagram shows the poles induced in ball Y?



QUESTION # 7: O/N 19 P12

29 The diagram shows two magnetic field lines of the magnetic field around two bar magnets.



Which row shows the magnetic poles at end P and end Q of the two magnets?

	P	Q
A	N	N
B	N	S
C	S	N
D	S	S

Magnetic properties of matter

QUESTION # 1: M/J 17 P11

33 What proves that a metal bar is a permanent magnet?

- A** It attracts both ends of a compass needle.
- B** It attracts one end of another magnet.
- C** It conducts electricity.
- D** It repels one end of another magnet.

QUESTION # 2: M/J 17 P11

34 Electrical apparatus is protected from magnetic fields by placing the apparatus in a box.

What is the box made from?

- A** aluminium
- B** iron
- C** rubber
- D** steel

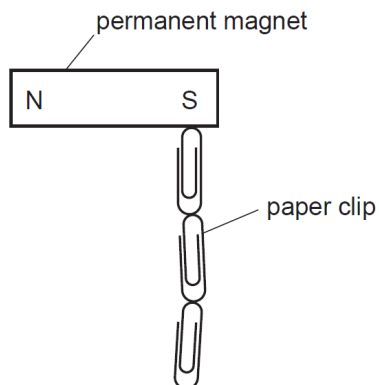
QUESTION # 3: M/J 17 P12

31 Which action demagnetises a bar magnet?

- A** placing the magnet inside a coil connected to a d.c. supply
- B** placing the magnet inside a coil connected to an a.c. supply
- C** withdrawing the magnet from inside a coil connected to a d.c. supply
- D** withdrawing the magnet from inside a coil connected to an a.c. supply

QUESTION # 4: M/J 19 P11

- 28** A student investigates a permanent magnet by suspending paper clips from the magnet as shown.



Which statement is correct?

- A** Each paper clip has a S-pole at the top and a N-pole at the bottom when suspended from the permanent magnet.
- B** If the paper clips are made of soft iron they become demagnetised when the permanent magnet is removed.
- C** If the paper clips are made of steel they become demagnetised when the permanent magnet is removed.
- D** More paper clips can be suspended from the N-pole.

QUESTION # 5: M/J 19 P12

31 One end of each of two bars is marked with an X or a Y, as shown.



End X of bar 1 is brought close to the N-pole and then to the S-pole of a magnet.

End Y of bar 2 is brought close to the N-pole and then to the S-pole of the magnet.

The table shows what happens.

	end X of bar 1	end Y of bar 2
N-pole of magnet	attracted	attracted
S-pole of magnet	attracted	repelled

What materials are bar 1 and bar 2 made from?

	bar 1	bar 2
A	copper	iron
B	iron	steel
C	steel	copper
D	steel	iron

QUESTION # 6: O/N 16 P11

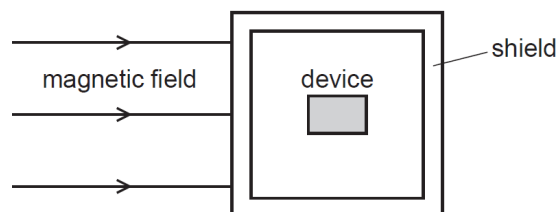
30 Delicate instruments are often placed in a box to screen them from stray magnetic fields.

What is the material used for the box and why is it chosen?

- A** Aluminium is used because it is a non-magnetic material.
- B** Copper is used because it has a low electrical resistance.
- C** Polythene is used because it is a good electrical insulator.
- D** Soft iron is used because it is a magnetic material.

QUESTION # 7: O/N 17 P11

- 27 The diagram shows a sensitive device surrounded by a shield that prevents the magnetic field from reaching the device.

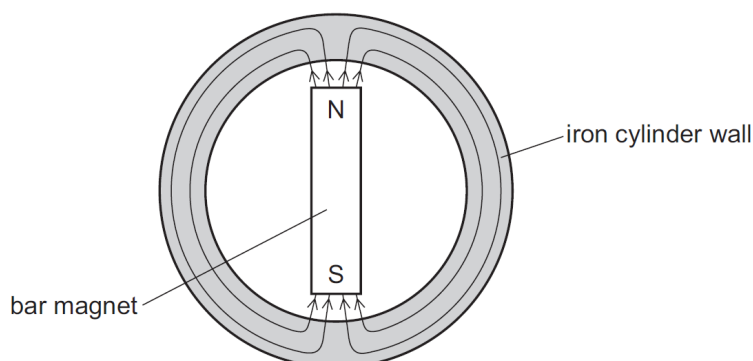


How does the shield protect the device?

- A It channels the magnetic field around the shield until it emerges on the right-hand side.
- B Its left-hand side absorbs the magnetic field.
- C Its left-hand side reflects the magnetic field.
- D Its left-hand side scatters the magnetic field in all directions.

QUESTION # 8: O/N 20 P11

- 32 A bar magnet is placed in a hollow iron cylinder. The diagram shows the magnetic field pattern produced.



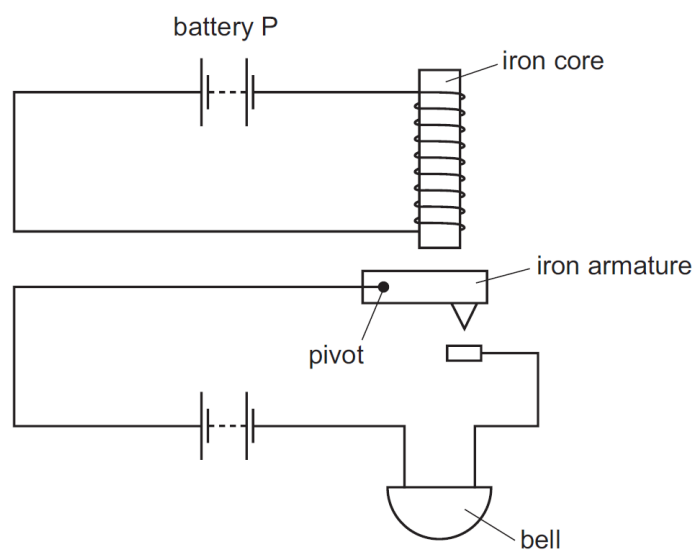
What is the cause of the field inside the cylinder wall?

- A electromagnetic generation
- B electromagnetic induction
- C electrostatic induction
- D magnetic induction

Electromagnetism

QUESTION # 1: M/J 18 P11

27 The diagram shows an alarm system.



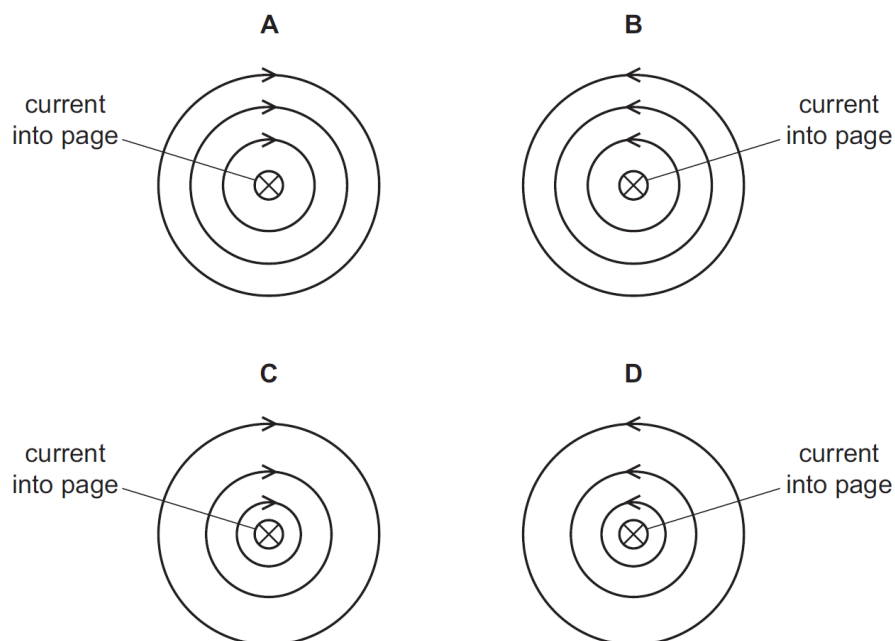
What happens when battery P is disconnected?

	iron armature	bell
A	falls	rings
B	falls	stops ringing
C	moves up	rings
D	moves up	stops ringing

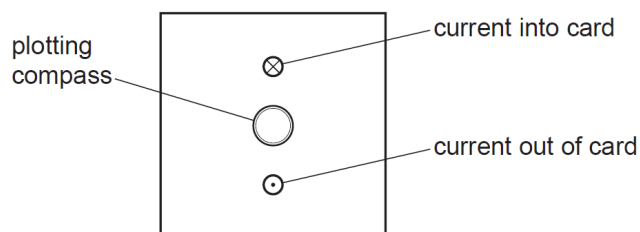
QUESTION # 2: M/J 18 P11

28 An electric current in a wire is into the page.

Which diagram shows the shape and direction of the magnetic field around the wire?

**QUESTION # 3: M/J 19 P11**

29 Two vertical wires pass at right-angles through a piece of card. There is a large current in each wire in the direction shown.



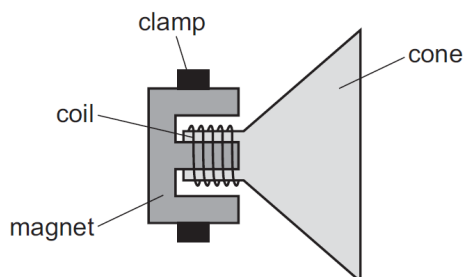
A plotting compass is placed on the card.

Which diagram shows the direction in which the needle of the plotting compass points?



QUESTION # 4: M/J 20 P11

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

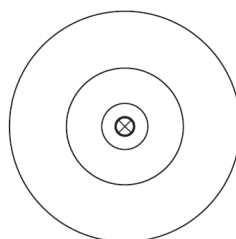


What is vibrating to produce the sound?

- A coil only
- B cone only
- C magnet only
- D coil and cone

QUESTION # 5: O/N 17 P12

- 34 A straight wire carries a current into the paper. The diagram shows three magnetic field lines around the wire.



key

⊗ current into paper

The current in the wire increases.

What is the direction of the field lines and which change occurs to the field lines as the current increases?

	direction	change
A	clockwise	the lines move closer together
B	clockwise	the lines move further apart
C	anticlockwise	the lines move closer together
D	anticlockwise	the lines move further apart