3.7 Magnetism and Electromagnetism: 10-minute Pack

AQA 8463 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Magnets have two ends called poles.

(a) State the names given to the two poles of a bar magnet. **(1)**

(Total for Question 1 is 1 mark)

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2 Magnets can be described as permanent or induced.

(a) Define what is meant by a permanent magnet. **(1)**

(b) Name one magnetic material, other than iron, that could be used to make a magnet. **(1)**

(c) A steel paperclip becomes magnetised when it is held close to a strong permanent magnet, but loses most of its magnetism once the magnet is taken away. State the term used to describe this type of magnetism. **(1)**

(Total for Question 2 is 3 marks)

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3 A student holds two small bar magnets near each other and observes their behaviour.

(a) Give the observation when the north pole of one magnet is brought near the north pole of the other magnet. **(1)**

(b) Give the observation when the north pole of one magnet is brought near the south pole of the other magnet. **(1)**

(Total for Question 3 is 2 marks)

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4 A doorbell uses an electromagnet to pull a metal striker. The student investigates why the striker might not move when the button is pressed.

(a) Suggest two possible reasons, linked to electricity or magnetism, why the striker does not move when the button is pressed. **(3)**

(Total for Question 4 is 3 marks)

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Mark scheme · 3.7 Magnetism and Electromagnetism: 10-minute Pack

Question 1

(a) north and south (poles) cao **B1**

(a) Answer: North and south

Question 2

(a) a magnet that produces its own magnetic field and does not need this to be induced by another magnet or an electric current, oe **B1**

(a) Answer: A magnet that produces its own magnetic field, which is not induced by another magnet or a current.

(b) steel / cobalt / nickel (any one) **B1**

(b) Answer: Steel (or cobalt, or nickel).

(c) induced magnetism / an induced magnet, oe **B1**

(c) Answer: Induced magnetism - the paperclip becomes an induced magnet.

Question 3

(a) they repel / push apart (north repels north) oe cao **B1**

(a) Answer: They repel

(b) they attract / pull together (north attracts south) oe cao **B1**

(b) Answer: They attract

Question 4

(a) no electrical contact or broken wire so no current flows **B1**

(a) supply voltage too low or battery flat so current too small **B1**

(a) electromagnet coil damaged or too few turns/loose core so magnetic field too weak **B1**

(a) Answer: Any two of: broken electrical contact/broken wire; battery flat or supply voltage too low; damaged coil or too few turns/weak electromagnet.

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