

8 This question is about magnetic fields.

- (a) Diagram 1 shows a positively charged proton moving downwards in a uniform magnetic field.

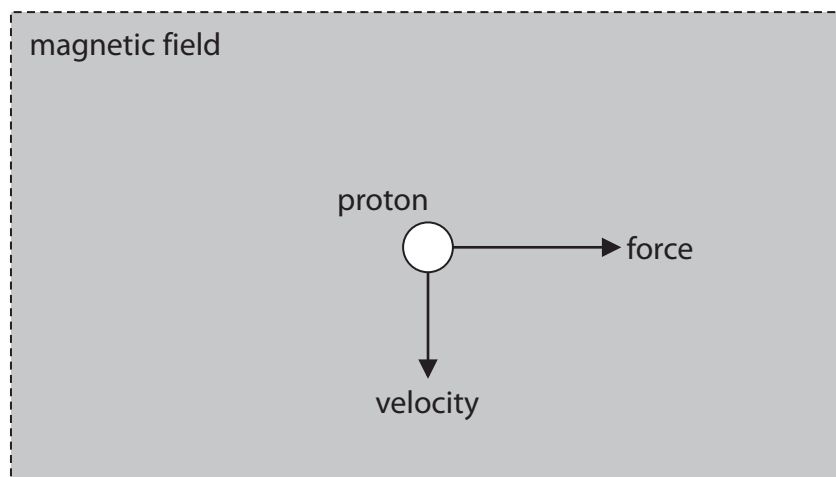


Diagram 1

The proton experiences a force to the right.

What is the direction of the magnetic field?

(1)

- ☐ A into the page
- ☐ B left
- ☐ C out of the page
- ☐ D upward

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(b) When a current passes through a flat circular coil, a magnetic field is produced.

Complete diagram 2 by drawing the magnetic field of the flat circular coil.

(3)



Diagram 2

Turn over for the last part of the question



- (c) A wireless charging base uses a magnetic field to charge the battery of a mobile phone.



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There is an alternating current in a coil of wire in the charging base.

There is another coil of wire connected to the battery in the mobile phone.

- (i) Explain how the wireless charging base charges the battery of the mobile phone.

(3)

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- (ii) Discuss the advantages and disadvantages of using a high current in the wireless charging base.

(2)

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(Total for Question 8 = 9 marks)

TOTAL FOR PAPER = 70 MARKS

