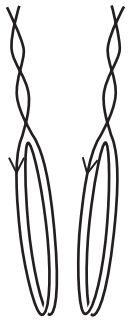
7 (a) A direct current passes around a flat, circular coil as shown.

On the diagram, sketch the magnetic field caused by the current in the coil.

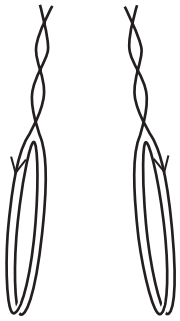
(3)

(b) The coil is suspended vertically so that it is free to swing.
A second, identical coil is placed beside it.

When direct currents pass, as shown, the two coils move together.



When the current in the right-hand coil is reversed, the two coils move apart.



Explain why the coils move in this way.

(3)

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(Total for Question 7 = 6 marks)