

- 7 A bar magnet is suspended from a spring. One pole of the magnet oscillates freely in a coil of wire, as shown in Fig. 7.1.

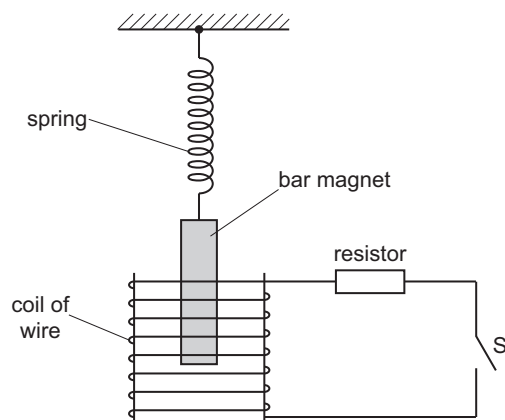


Fig. 7.1

The switch S is initially open.

- (a) The switch S is now closed. As a result, the oscillations of the magnet are lightly damped.

- (i) State what is meant by damping.

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..... [2]

- (ii) Describe what is observed to indicate that the damping is light.

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..... [1]

- (iii) By reference to electromagnetic induction and to conservation of energy, explain why the oscillations are damped.

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..... [3]

- (b) The procedure in (a) is repeated after replacing the resistor with one of greater resistance.

Suggest, with a reason, the effect of this change on the oscillations.

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..... [2]

[Total: 8]