**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.

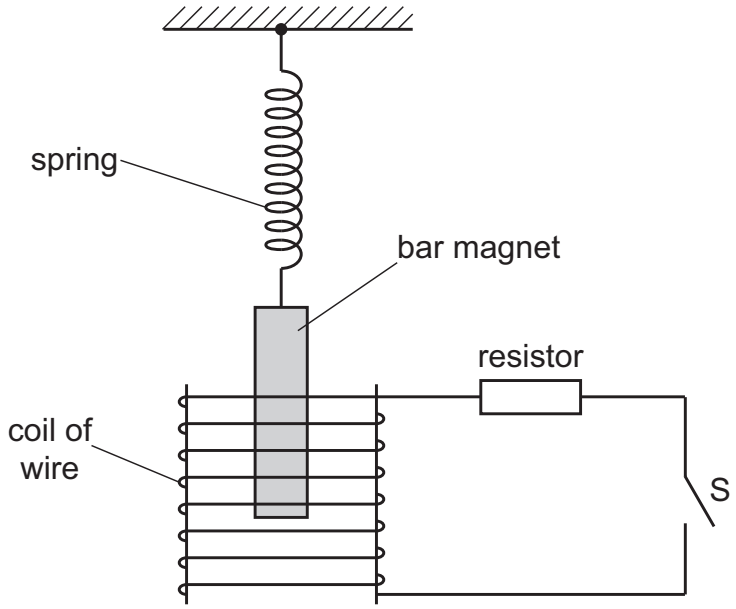


**Fig. 7.1**

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.

.....

.....

..... [2]

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

.....

..... [1]

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

.....

.....

.....

..... [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.

.....

.....

..... [2]

[Total: 8]