

10 (a) State Lenz's law.

[2]

(b) A metal ring is suspended from a fixed point P by means of a thread, as shown in Fig. 10.1.

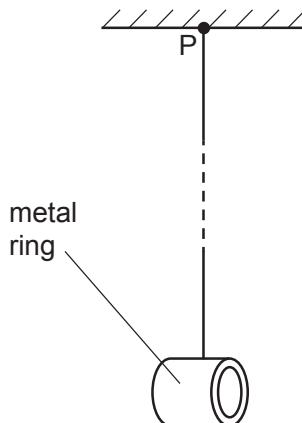


Fig. 10.1

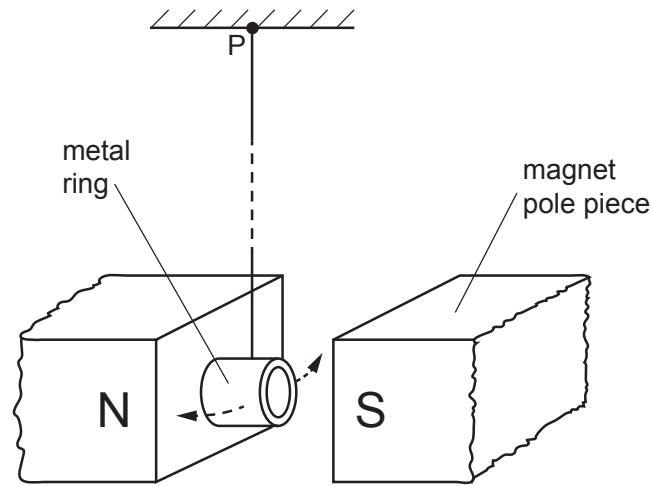


Fig. 10.2

The ring is displaced a distance d and then released. The ring completes many oscillations before coming to rest.

The poles of a magnet are now placed near to the ring so that the ring hangs midway between the poles of the magnet, as shown in Fig. 10.2.

The ring is again displaced a distance d and then released.

Explain why the ring completes fewer oscillations before coming to rest.

[4]

- (c) The ring in (b) is now cut so that it has the shape shown in Fig. 10.3.



Fig. 10.3

Explain why, when the procedure in (b) is repeated, the cut ring completes more oscillations than the complete ring when oscillating between the poles of the magnet.

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[3]