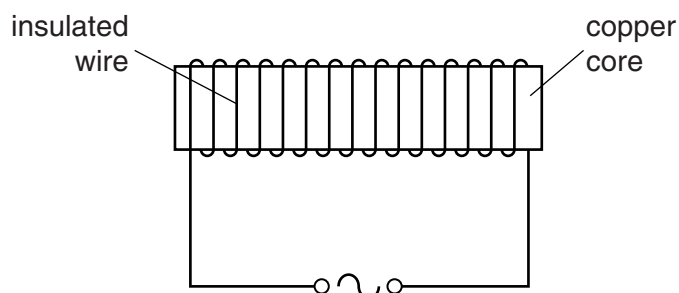


- 10 (a) A coil of insulated wire is wound on a copper core, as illustrated in Fig. 10.1.



**Fig. 10.1**

An alternating current is passed through the coil.

The heating effect of the current in the coil is negligible.

Explain why the temperature of the core rises.

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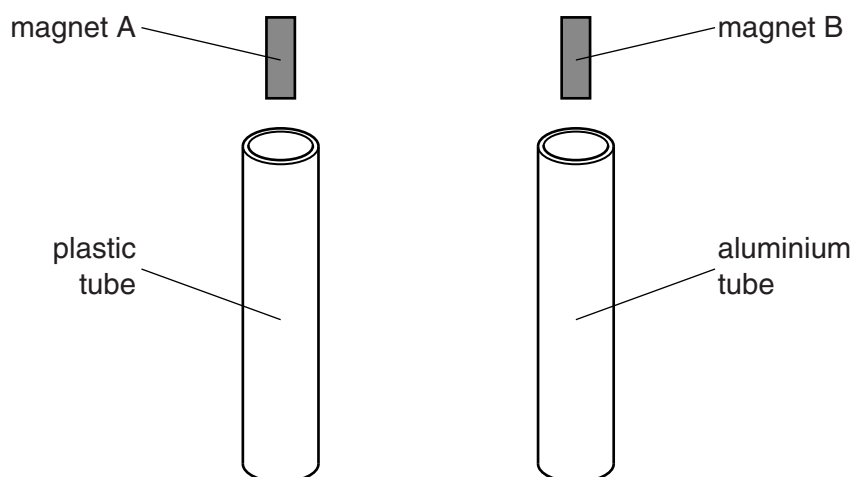
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..... [4]

- (b) Two hollow tubes of equal length hang vertically as shown in Fig. 10.2.



**Fig. 10.2**

One tube is made of plastic and the other of aluminium.

Two small similar bar magnets A and B are held above the tubes and then released simultaneously.

The magnets do not touch the sides of the tubes.

Explain why magnet B takes much longer than magnet A to fall through the tube.

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[Total: 9]