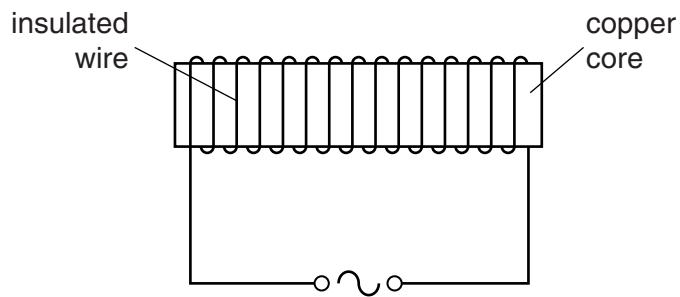


- 10 (a) A coil of insulated wire is wound on a copper core, as illustrated in Fig. 10.1.



**Fig. 10.1**

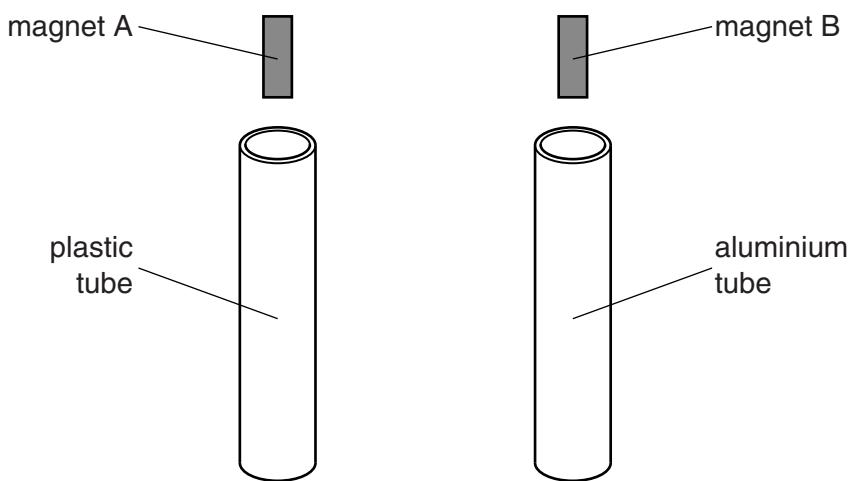
An alternating current is passed through the coil.

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

Explain why the temperature of the core rises.

.....  
.....  
.....  
.....  
.....  
..... [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.

[5]

[5]

[Total: 9]