

- 7 (a) The mean value of an alternating current is zero.

Explain

- (i) why an alternating current gives rise to a heating effect in a resistor,

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 [2]

- (ii) by reference to heating effect, what is meant by the root-mean-square (r.m.s.) value of an alternating current.

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 [2]

- (b) A simple iron-cored transformer is illustrated in Fig. 7.1.

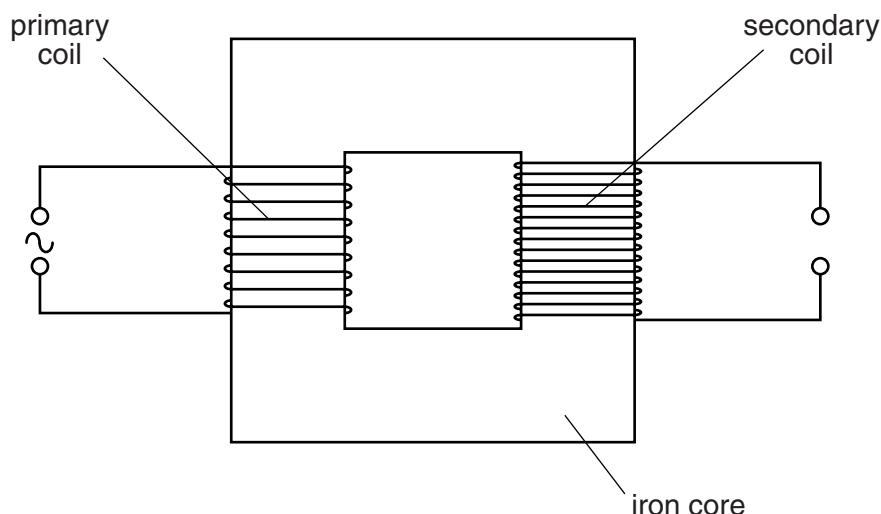


Fig. 7.1

- (i) State Faraday's law of electromagnetic induction.

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 [2]

- (ii) Use Faraday's law to explain why the current in the primary coil is not in phase with the e.m.f. induced in the secondary coil.

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[3]