

6 An ideal transformer is shown in Fig. 6.1.

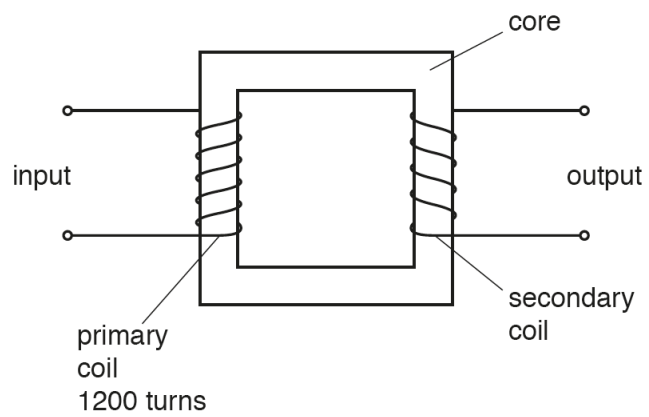


Fig. 6.1

(a) Explain why the core is

(i) made of iron,

.....
.....

.....
.....[1]

(ii) laminated.

.....

.....[1]

(b) Use Faraday's law to explain the operation of the transformer.

.....

.....

.....

.....[2]

(c) An alternating voltage of peak value 150 V is applied across the 1200 turns of the primary coil. The variation with time t of the e.m.f. E induced across the secondary is shown in Fig. 6.2.

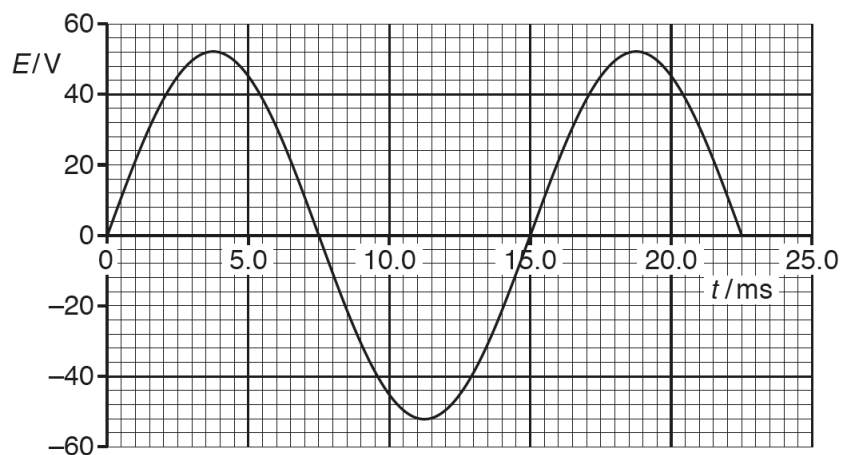


Fig. 6.2

Use data from Fig. 6.2 to

(i) calculate the number of turns of the secondary coil,

number = [1]

(ii) state one time when the magnetic flux linking the secondary coil is a maximum.

time = ms [1]