6 A simple transformer is illustrated in Fig. 6.1.
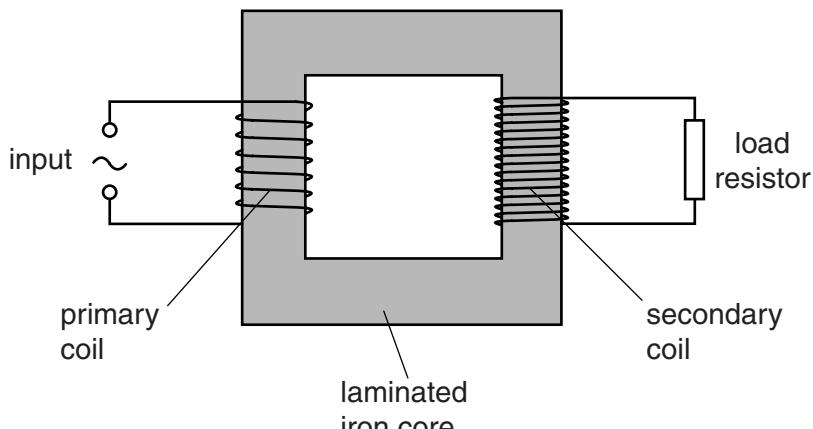

input $\sim$

load
resistor

primary
coil

secondary
coil

laminated
iron core

Fig. 6.1

(a) State

(i) why the iron core is laminated,

....

....

....[2]

(ii) what is meant by an *ideal* transformer.

....

....[1]

(b) An ideal transformer has 300 turns on the primary coil and 8100 turns on the secondary coil.
The root-mean-square input voltage to the primary coil is 9.0 V.

Calculate the peak voltage across the load resistor connected to the secondary coil.

peak voltage = ... V [2]