6 **(a)** An ideal iron core transformer is shown in Fig. 6.1.

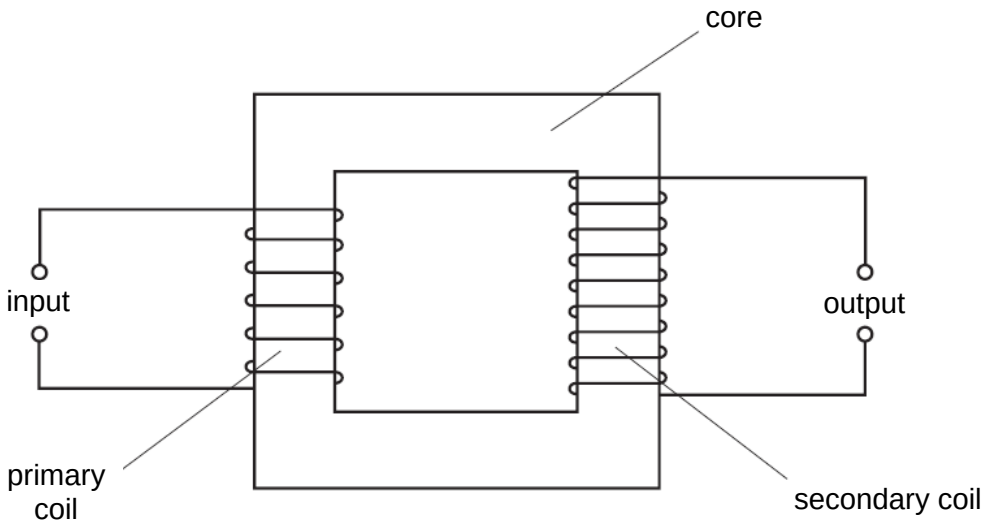

Fig. 6.1

Explain

(i) why the iron core is laminated,

……

……[1]

(ii) why the alternating current in the primary coil of a transformer is not in phase with the alternating e.m.f. induced in the secondary coil.

……

……

……

……[3]

(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]

[Total: 6]