7.23 A coil of 0.01-henry inductance and 1-ohm resistance is connected to 200 volt, 50 Hz ac supply. Find the impedance of the circuit and time lag between max. alternating voltage and current.

Answer:

Inductance L = 0.01 H

Resistance R = 1 ohm

Voltage = 200 V

Frequency = 50 Hz

Impedance = Z = 3.3 ohms

Phase difference = 72 × π/180 rad

Time lag in the alternating voltage and the current is 0.004 sec