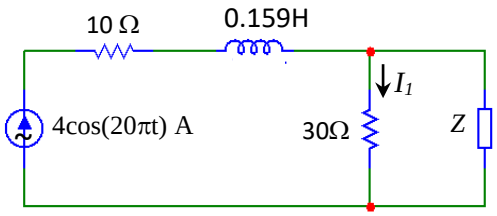
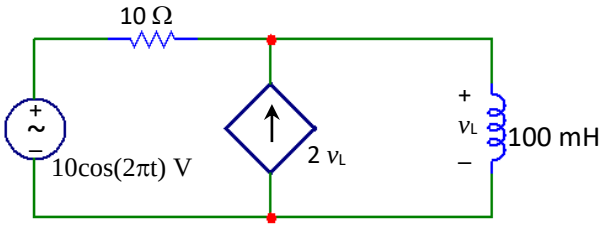
Department of Electrical Engineering, IIT Kanpur ESc 201: Introduction to Electronics

Assignment-4

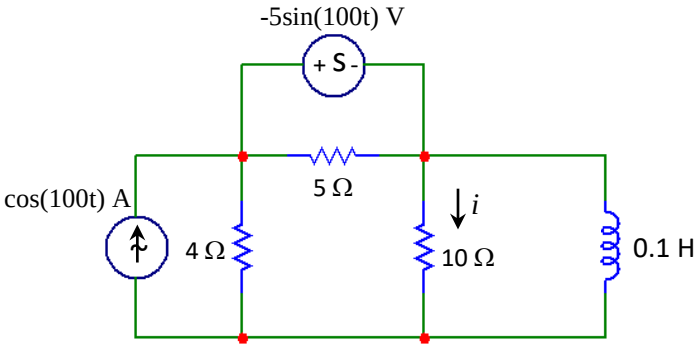
1. Determine the value of the impedance Z in the following circuit if the current I_1 = (2.56+j1.92)A.



2. Determine the voltage v_L across the inductor in the following circuit, and the average power supplied by the dependent current source.



3. Determine the current $i(t)$ through the 10Ω resistor.

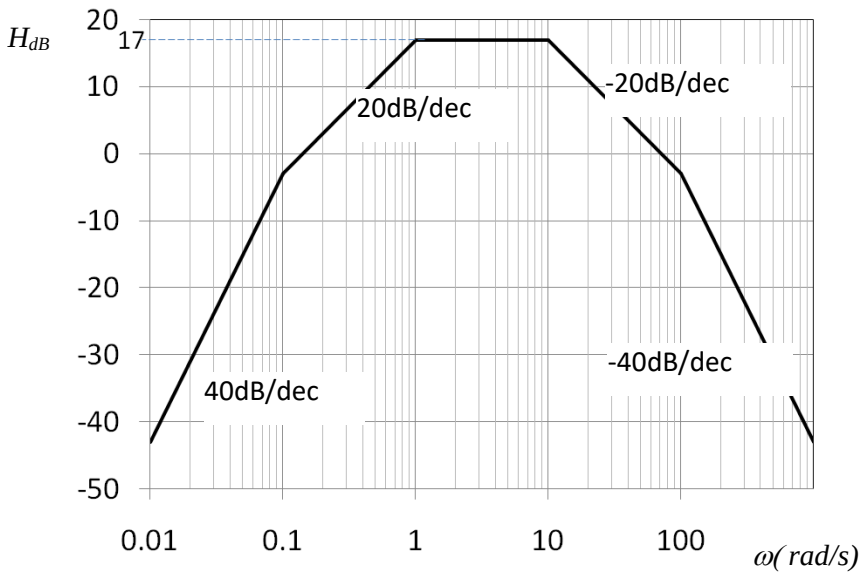


4. Draw the Bode magnitude plot for the following transfer functions.

(a) $H(j\omega) = \dfrac{200\, j\omega}{(j\omega+2)(j\omega+10)}$

(b) $H(j\omega) = \dfrac{(j\omega)^2(j\omega+100)}{(j\omega+1)(j\omega+10)(j\omega+1000)}$

5. Find the transfer function for the following Bode plot.



6. Determine the transfer function (V_o/V_s) for the following circuit.