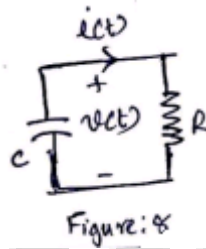


ASSIGNMENT : 3

1. Derive the equation of inductor current and draw its waveform for a series R-L circuit connected to a step input voltage.
2. What do you mean by a first order system? Give two examples of first order systems. Explain the procedure to obtain the transient response of a first order system.
3. Explain the time response of R-L-C series circuit with step input. Assume critically damped system.
4. How the following elements will behave at $t = 0$ and $t = \infty$. Draw the equivalent network as well. (a) Inductor (b) Capacitor.
5. In the circuit shown in figure:8, voltage and current expressions are $v(t) = 100e^{-1000t}V, t \geq 0$ and $i(t) = 5e^{-1000t}mA, t \geq 0$. Find (a) R, C and Time Constant (τ). (b) Initial energy stored in capacitor.



6. Explain and derive the step response to R-L series circuit using Laplace Transformation method