



B.Tech II Semester Regular Examinations, September 2023
Network Analysis

(Electrical & Electronics Engineering)

Maximum Marks: 60

Date: 16.09.2023 Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10x1M=10 Marks)

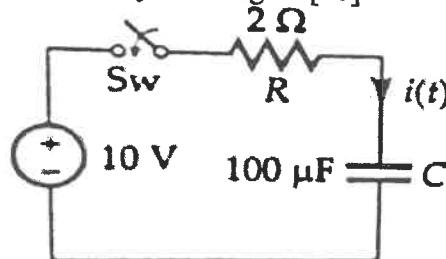
1. a Define Transient Response.
b Write about the initial condition of capacitor?
c Define damping ratio.
d How the inductor and capacitor behaves at steady state
e Derive the Laplace transform of ramp function
f Define time constant of series RL circuit
g Define a two port network.
h Write Z parameters of two port network.
i Define propagation constant
j Define cut off frequency

Part-B

Answer All the following questions.

(5X10M=50Marks)

- 2 Derive the Transient state response for Current in first order RL parallel circuit with dc excitation. [10]
- OR
- 3 Derive the expression for voltage across capacitor with and without source of first order RC series circuit. [10]
- 4 Explain the transient response of series RL circuit when a sinusoidal voltage is applied to the circuit. [10]
- OR
- 5 For the circuit shown in the figure, Obtain the current through and voltage across the capacitor at $t=0$ and assume the capacitor is initially discharged. [10]



6 Obtain the Current Expression for Transient Response of Series RLC Circuit excited by DC using Laplace Transform Method? [10]

OR

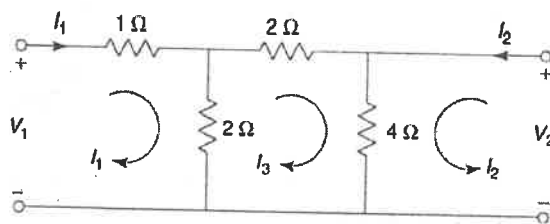
7 a) Derive the Transient state response for Current in first order RL series circuit with impulse input. [5]

b) Derive the expression for voltage across capacitor in RC circuit impulse input. [5]

8 Express the relationship of Z Parameters in terms of Y-parameters and h-Parameters. [10]

OR

9 Determine h parameters of the network shown in figure and verify whether the network is reciprocal. [10]



10 Define filter and explain the classification of filters in detail. [10]

OR

11 Design a low pass T section with cut-off frequency 2500Hz to work into 1000Ω load

i) Compute attenuation in neper and decibel at 3000Hz and 5000Hz.

ii) Find phase shift at 1000Hz and 2000Hz. [10]