



R22 Regulation

Subject code: 4E3DC

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech III Semester Supplementary Examinations, April 2025

NETWORK THEORY

(ECE)

Maximum Marks: 60

Date: 13.05.2025

Duration: 3 hours

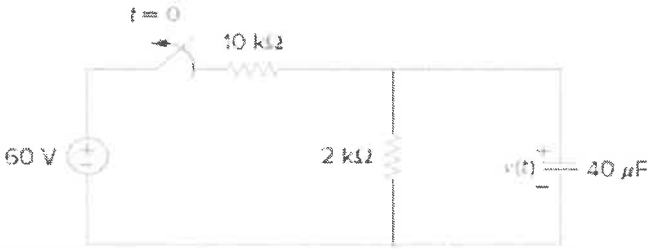
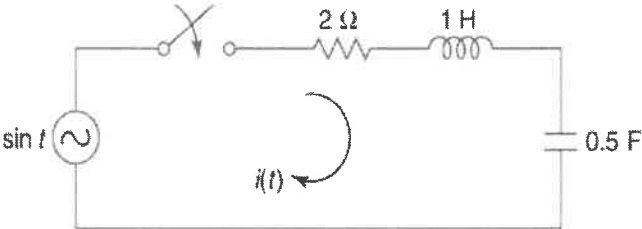
- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	Bloom Tx
1.a)	Define Basic Cut set.	1M	1	1
b)	What is duality and dual networks?	1M	1	1
c)	Define the time constant of RC circuit.	1M	2	1
d)	Distinguish between steady state and transient state response.	1M	2	1
e)	Find the Laplace transform of step function.	1M	3	4
f)	Find the Laplace transform of exponential decaying function.	1M	3	1
g)	Define admittance parameters.	1M	4	1
h)	Define transmission parameters.	1M	4	1
i)	What is low pass filter?	1M	5	1
j)	Define attenuation.	1M	5	1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
2	Illustrate the steps to obtain Basic Tie set.	10M	1	2
OR				
3	Draw the dual of the network shown below	10M	1	3
4	Derive an expression for current response of RC series circuit transients.	10M	2	3
OR				
5	The switch in Figure below has been closed for a long time and it opens at $t = 0$ find $v(t)$ for $t \geq 0$	10M	2	1

				
6	For the network shown in figure below the switch is closed at $t = 0$. Determine the current $i(t)$ by Laplace transform Approach Assuming Zero initial conditions. 	10M	3	5
	OR			
7	Determine $f(t)$ if $F(s) = \frac{6(s+2)}{(s+1)(s+3)(s+4)}$	10M	3	5
8	Explain about series connection of two port networks with neat sketch.	10M	4	5
	OR			
9	Derive the relation between h-parameters in terms of ABCD parameters	10M	4	3
10	Explain briefly about double tuned filters.	10M	5	2
	OR			
11	A T Section low pass filter has an inductance of 30 mH in each of the series arms and a shunt arm capacitance of 0.25 μ F. Calculate the cut off frequency, characteristic impedance, ratio of input and output voltages, and phase shift at 1 kHz.	10M	5	3