R22 Regulation *Subject code:4E2AG*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech II Semester Supplementary Examinations, June 2026

NETWORK ANALYSIS

(EEE)

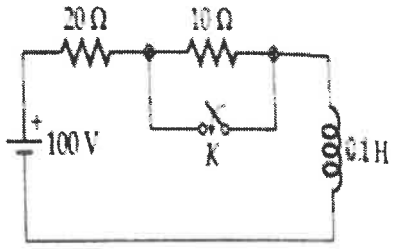
Maximum Marks: 60 Date: 17.06.2026 Duration: 3 hours

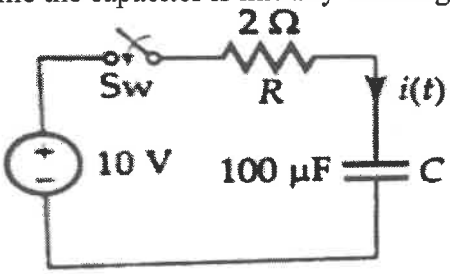
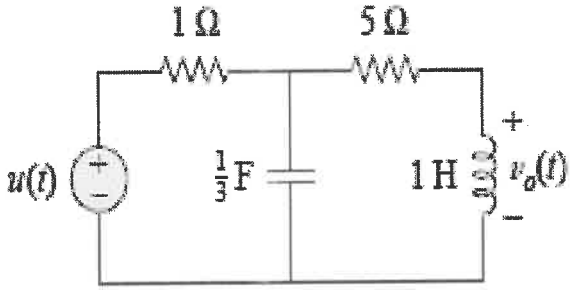
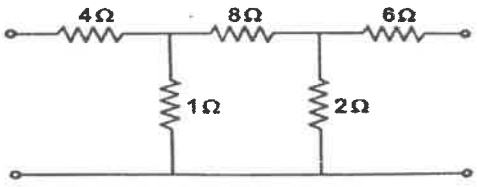
Note: 1.This question paper contains two parts A and B.
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	BTL
1.a	Write about the initial condition of capacitor?	1M	1	1
b	Define time constant and write the time constant for RC circuit.	1M	1	1
c	Define damping ratio.	1M	2	2
d	Calculate the time constant of a circuit consisting of a 15mH inductor and a 470Kohm resistor.	1M	2	2
e	Explain transient conditions for the inductor and capacitor	1M	3	2
f	What is Laplace transformation of the function Cos(ωt).	1M	3	3
g	What is the condition for reciprocity in Y parameters?	1M	4	1
h	What is the function of filter?	1M	4	2
i	Define band rejection filter.	1M	5	1
j	Define steady state response.	1M	5	2

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	a) Differentiate Transient response and Steady state response? b) If the switch K is closed at t=0. Find the transient response for the current in the circuit. 	5M 5M	1	3
	OR			
3	Derive the Transient state response for Current in first order RL series circuit with sinusoidal excitation.	10M	1	1

4	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. 	10M	2	2
	OR			
5	Derive the Transient state response for Current in first order RL parallel circuit with dc excitation.	10M	2	1
6	Define transient response. Derive an expression for transient response of series R-L circuit excited by constant DC voltage using Laplace transformation.	10M	3	2
	OR			
7	Define Laplace Transform and Find $v_o(t)$ in the circuit using Laplace transform. 	10M	3	4
8	Express the relationship of Z Parameters in terms of Y-parameters and h-Parameters.	10M	4	3
	OR			
9	In the given network as shown in Fig. Find ABCD – parameters and check the condition for symmetry and Reciprocity. 	10M	4	1
10	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	10M	5	3
	OR			
11	a)Design a prototype low pass filter and high pass (T and π) sections if design impedance R_0=500Ω and cut-off frequency f_c=2000Hz b)Explain about classification of filters.	5M 5M	5	2