O.P.Code: 18EE0202	R18	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech II Year I Semester Supplementary Examinations June-2024
ELECTRICAL CIRCUITS-II
(Electrical & Electronics Engineering)

Time: 3 Hours **Max. Marks: 60**

PART-A
(Answer all the Questions **5 x 2 = 10** Marks)

1	a	What is star and delta connection?	CO1	L1	2M
	b	Define the time constant of RL circuit.	CO2	L1	2M
	c	Define tree of a network.	CO3	L1	2M
	d	What are hybrid parameters of two-port network?	CO4	L1	2M
	e	What are the advantages of laplace transform in the analysis of circuit?	CO5	L1	2M

PART-B
(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

2	a	Derive the relationship between Phase and Line voltages, currents in delta connected load.	CO1	L3	5M
	b	A balanced star connected load having an impedance (15+j20) Ω per phase is connected to a three phase 440 V,50Hz supply. Find line currents and phase voltages. Assume RYB phase sequence and also calculate power drawn by the load.	CO1	L3	5M

OR

3	a	Explain two watt meter method for power measurement in three phase circuits	CO1	L2	5M
	b	Three impedances Z1=20 , Z2=40 ,Z3=10 are delta connected to a 400V,3¢ System. Determine i) phase currents ii) line currents iii) total power consumed by the load.	CO1	L3	5M

UNIT-II

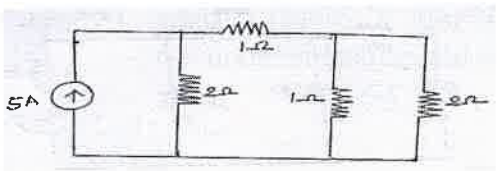
4		Derive the transient response of an RLC circuit with dc excitation	CO2	L3	10M

OR

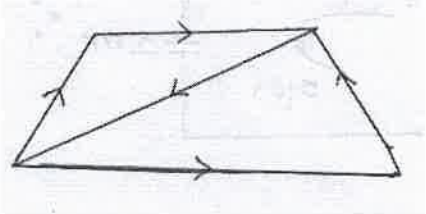
5	a	Derive the transient response of an RL circuit with AC excitation.	CO2	L3	5M
	b	A series RC circuit consists of resistor of 10 and capacitor of 0.1F has .a constant voltage of 20v is applied to the circuit at t=0.obtain the current equation. Determine the voltage across the resistor and the capacitor.	CO2	L3	5M

UNIT-III

6	a	Find the cutset matrix for the followings?	CO3	L3	5M

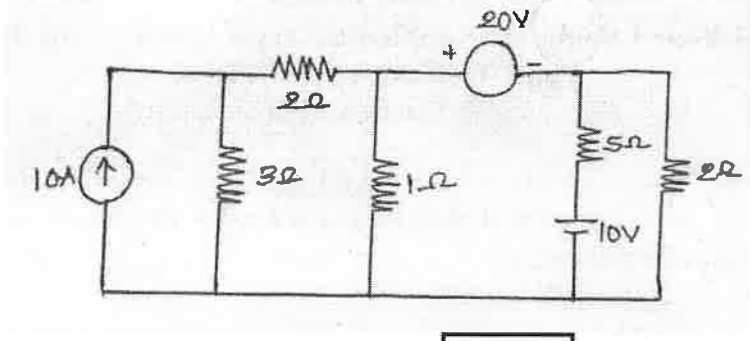


	b	Find the tieset matrix for the followings?	CO3	L3	5M



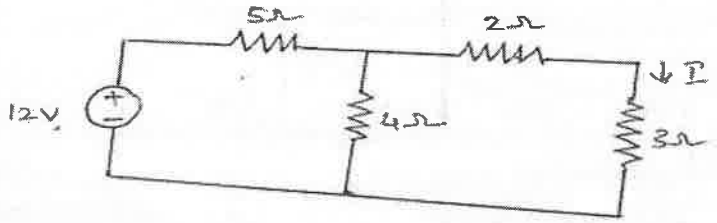
OR

7	Determine current in 5Ω resistor for the circuit shown in figure using network topology	CO3	L3	10M



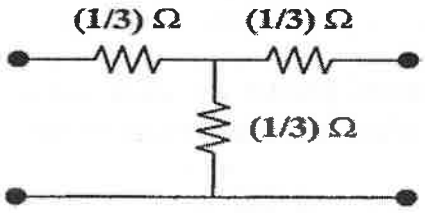
UNIT-IV

8	Verify Reciprocity Theorem for the network shown in figure	CO4	L2	10M



OR

9	Determine Y parameters of the following network	CO4	L3	10M



UNIT-V

10	Find the signal y(t), the Laplace transform of signal which is Y(S) = $\frac{S^3+7S^2+18S+20}{S^2+5X+6}$	CO5	L3	10M

OR

11	A 500Ω resister, a 16Mh inductor, and a 25 nF capacitor are connected in parallel which is placed in series with a 2000Ω resistor. Express the impedance of this series combination asa rational function of s	CO5	L2	10M

***** END *****