Course Code: 2030204 **Roll No:** MLRS- R20

MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section2(f) & 12(B)of the UGC act,1956

II B.Tech I Sem Supply End Examination, July-2022

Network Analysis

(EEE)

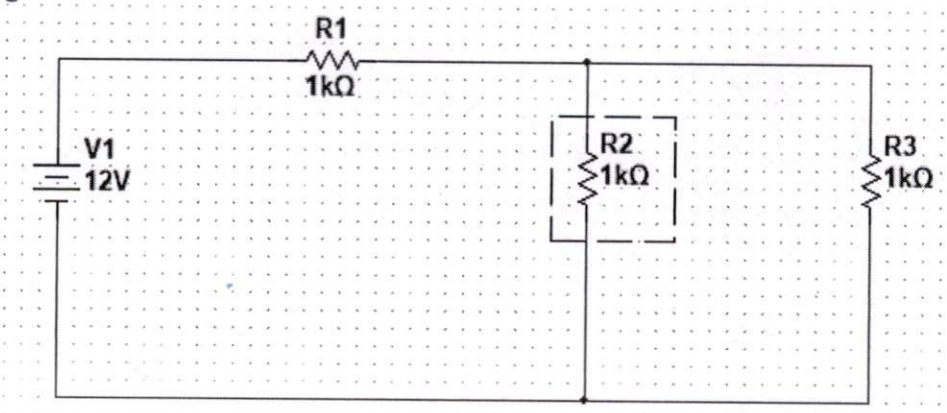
Max. Marks: 70

Note: 1. Question paper consists: Part-A and Part-B.
2. In Part – A, answer all questions which carries 20 marks.
3. In Part – B, answer any one question from each unit.
Each question carries 10 marks and may have a, b as sub questions.

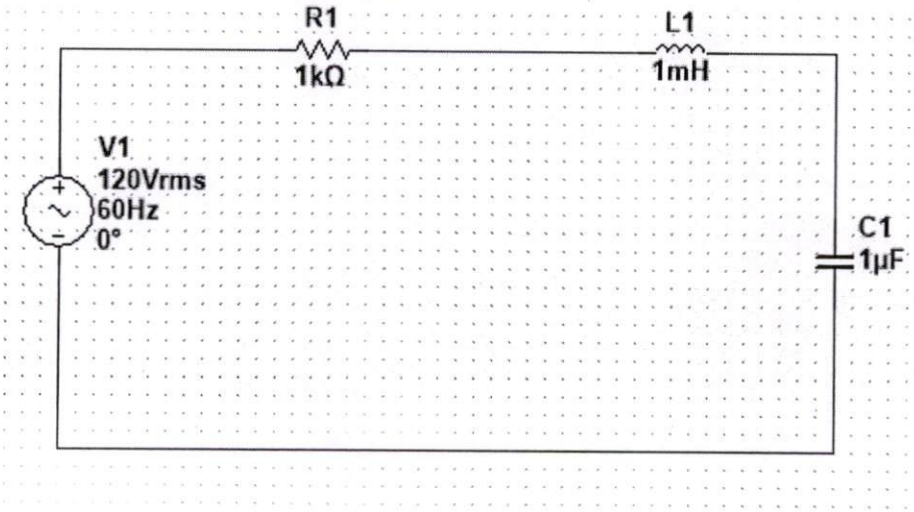
PART- A

(10*2 Marks = 20 Marks)

1. a) Explain the Mesh analysis and determine the voltage (V_{R3})in the given circuit — 2M CO1 BL-5



b) Design the dual of the network — 2M CO1 BL-6



c) Explain the phasor relationship in Series RL and series RC circuit? — 2M CO2 BL-2

d) Compare the difference between steady state and transient state analysis ? — 2M CO2 BL-5

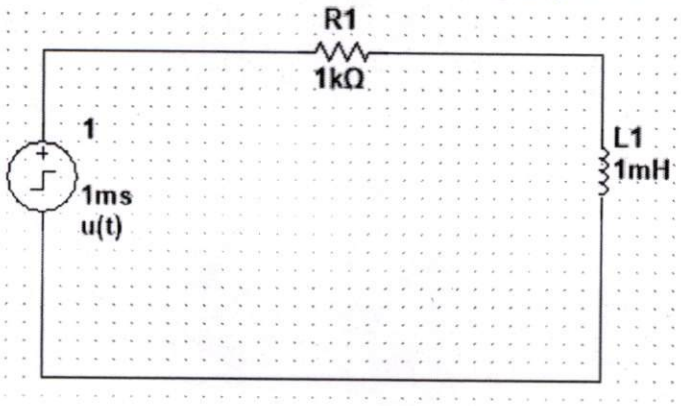
e) Define the Ideal transformer with neat sketch? — 2M CO3 BL-1

f) Explain the three phase circuits? — 2M CO3 BL-2

g) Illustrate the pole & zero in a transfer function? — 2M CO4 BL-2

h) 2M CO4 BL-5

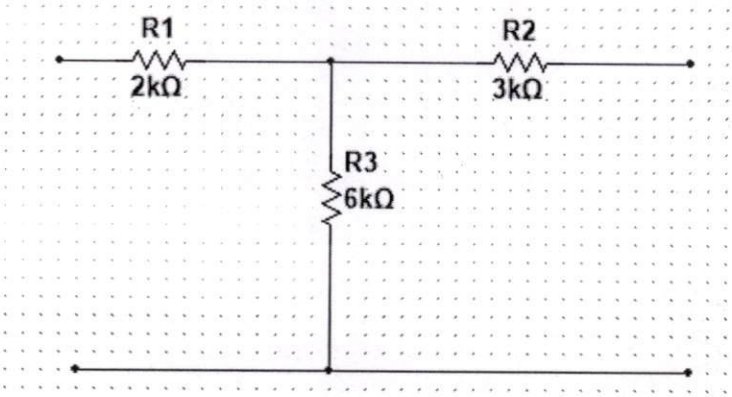
Determine the transfer function using Laplace transform



i) Determine the Z-parameters of the given two-port networks are connected in series 2M CO5 BL-5

$$\begin{bmatrix} 1 & 0 \\ 1 & 1 \end{bmatrix} \quad \begin{bmatrix} 0 & 1 \\ 2 & 3 \end{bmatrix}$$

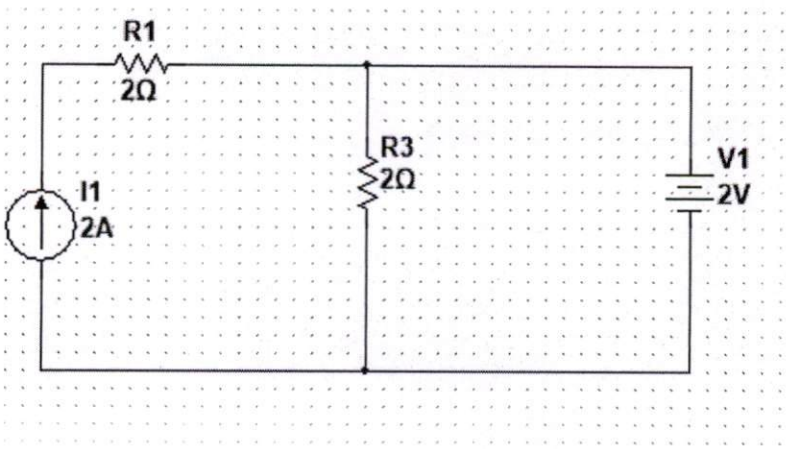
j) Evaluate the Y-parameters for the following circuit 2M CO5 BL-5



PART- B

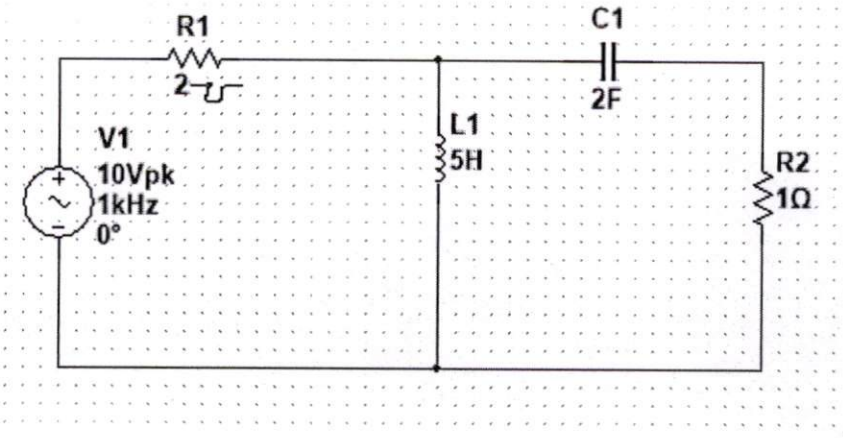
(10*5 Marks = 50 Marks)

2 a) Define the Telligence theorem and determine power across 2v using Telligence theorem 5M CO1 BL-1 & BL-6



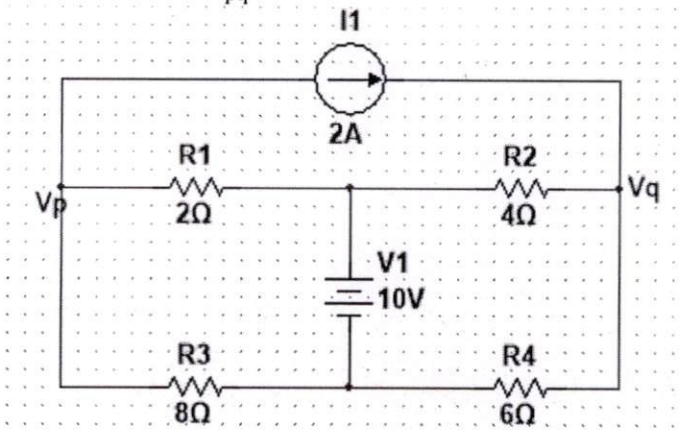
b) 5M CO1 BL-6

Design the dual of the network and determine the voltage across the 1ohm resistor?



OR

3 Determine the V_{pq} 10M CO1 BL-5

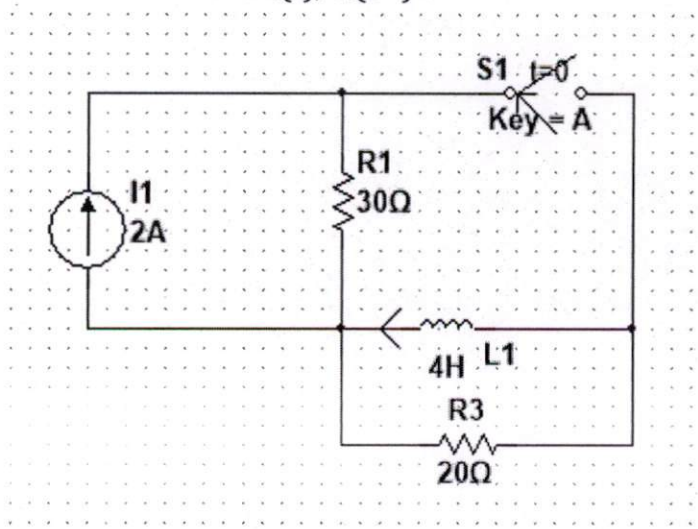


4 a) Develop the complete response first order Differential Equation for step input in series RLC circuit 5M CO2 BL-3

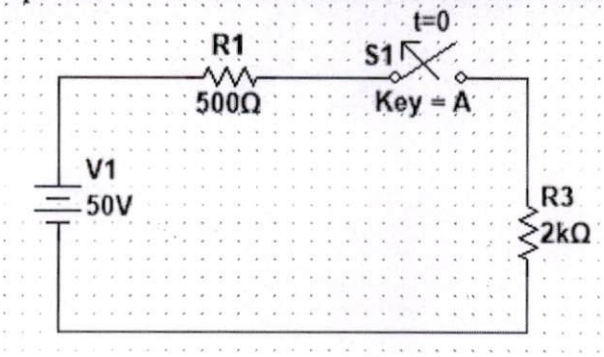
b) What is time constant? What are the time constants of series RL and RC circuits? 5M CO2 BL-1

OR

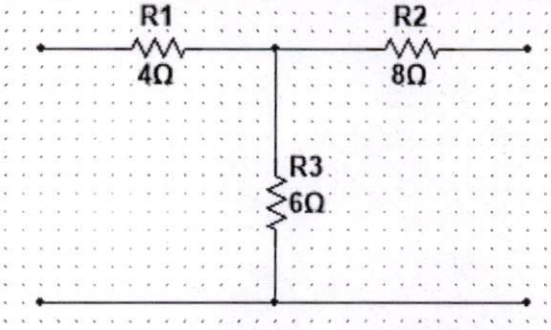
5 In the below circuit is the switch for a long time and It is opened at t=0.Determiine the $I_l(t)$, $V_l(0+)$? 10M CO2 BL-5



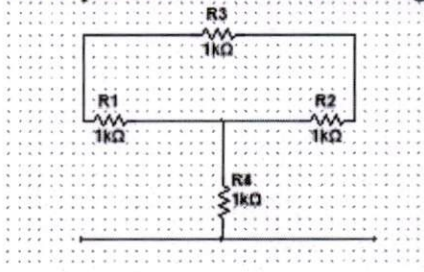
6	a)	Determine the resonance ,Bandwidth for parallel RLC circuit	5M	CO3	BL-5
	b)	Explain briefly about i) Mutual inductance ii) Dot convention method iii) Self inductance	5M	CO3	BL-2
		OR			
7		A Series RLC circuit has R=10ohm,L=0.5H,C=4uf & V(t)=100v. Using above data determine the i) Quality factor ii) upper & lower half power frequencies iii) V across the load iv)Voltage across capacitor	10M	CO3	BL-5
8	a)	Design the transfer function I(s) in series RL circuit using Laplace transform with the given input is Vsin(wt)	5M	CO4	BL-6
	b)	Evaluate the 2nd order series RLC using Laplace transform	5M	CO4	BL-5
		OR			
9		In the given circuit the switch is closed for a long time and it is opened at t=0.determine the initial and final value conditions	10M	CO4	BL-5



10	a)	Analyze the hybrid parameters for the given circuit	5M	CO5	BL-4



	b)	Justify the interrelation between the Z parameters in terms of T parameters	5M	CO5	BL-5
		OR			
11		Explain the symmetrical, reciprocal two port network and Evaluate the Z-parameters for following network	10M	CO5	BL-5



---oo0oo---