Course Code: 1930412 Roll No: MLRS- R19

MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
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II B.Tech I Sem Regular End Examination, March 2021

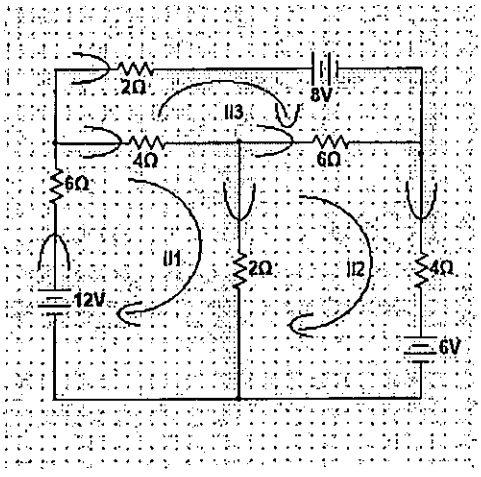
NETWORK ANALYSIS AND TRANSMISSION LINES

(ECE)

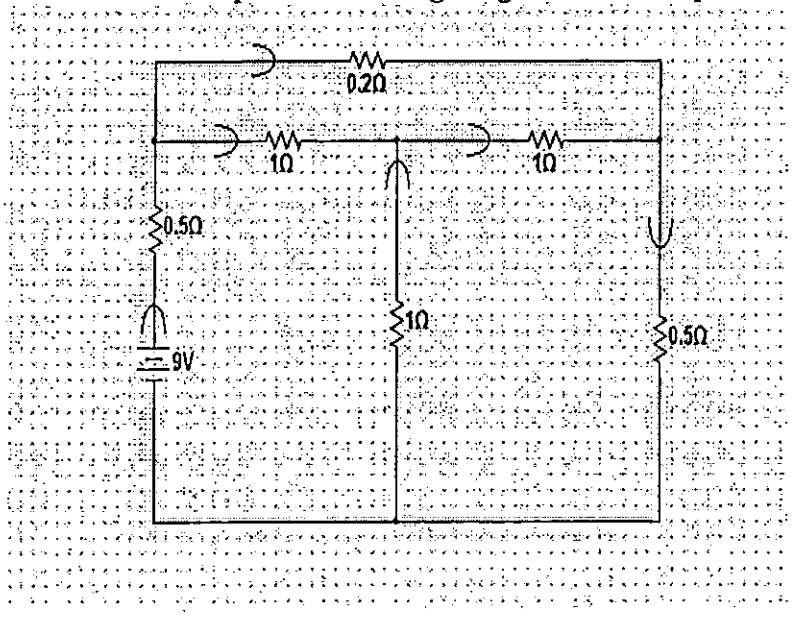
Time: 3 Hours. **Max. Marks: 70**

Note: 1. Answer any FIVE questions.
2. Each question carries 14 marks and may have a, b as sub questions.

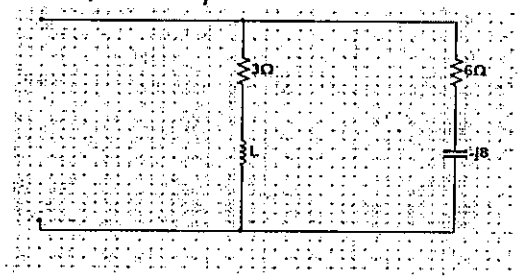
1	a)	Evaluate the mutual inductance for different types of magnetic coupling schemes using dot convention with neat sketches?	7M	CO	BL
	b)	Calculate the value of 'K' for the series circuit, if L1 = 15 mH, L2 = 30 mH and M = 12 mH.	7M	CO	BL
2	a)	Design the Oriented Graph and Frame the incident, tie-set & Cut-set Matrix?	7M	CO	BL



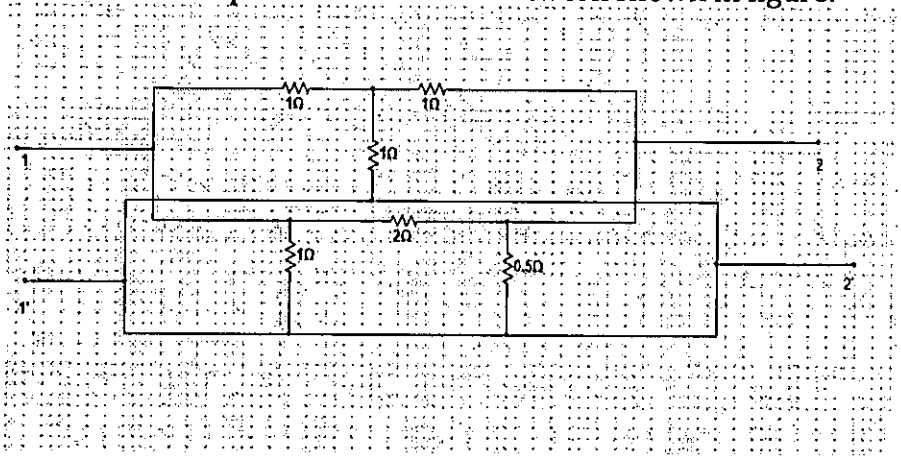
	b)	Calculate the loop currents for giving oriented Graph using tie-set.	7M	CO	BL



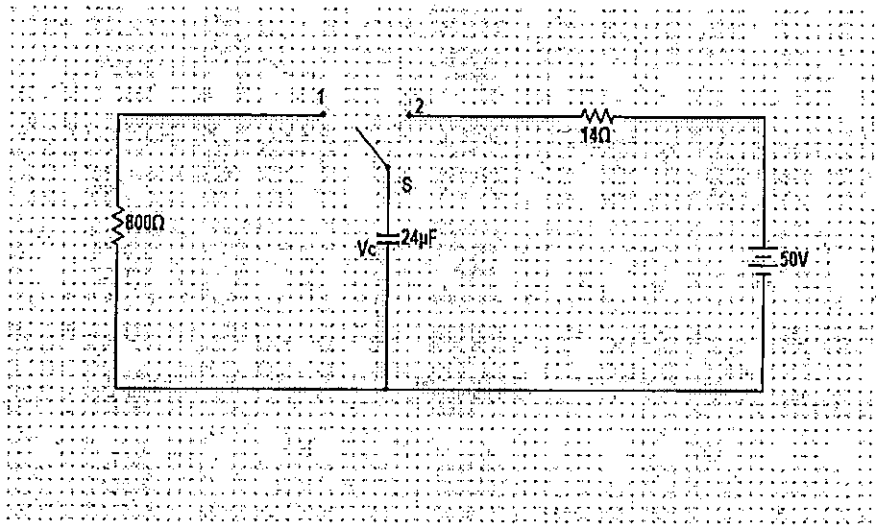
3	a)	Derive the expressions for transient parameters in the series RLC Circuit?	7M	CO	BL
	b)	Calculate the L for which the circuit is resonant at frequency W=10,000 rad/sec.	7M	CO	BL



4	a)	Determine the Y-parameters for the network shown in figure.	7M	CO	BL



	b)	For the giving n/w Switch is position1 for long time and it is move to position 2 at t=0.Determine the Vc(0+),Ic(0+)?	7M	CO	BL



5	a)	A dc voltage of 40 V is applied for a series RLC circuit, when the switch is closed at t = 0. Find the current transient for R = 20 ohm, L = 2 H, C = 0.2 F	7M	CO	BL
	b)	Design T-Pad attenuator to given attenuation of 60 db and to work in line of impedance(R0)500 ohms	7M	CO	BL

6	a)	Derive the Equations of attenuation constant & phase constant of Transmission Lines in terms of R ,L, G, C?	7M	CO	BL
	b)	Determine the approximation values of Z_0, alpha, beta for underground cable at 1600 Hz and it has R=44 ohm/km, G=1 μmho/km, L=0.001 H/km, C=0.065 μF/km.	7M	CO	BL
7	a)	Define the attenuation & derive the condition for minimum attenuation?	7M	CO	BL
	b)	What are applications of Smith Chart and also Describe the Single stub matching?	7M	CO	BL
8	a)	Derive the expression for characteristic impedance of lossless line and obtain the expression for input impedance at quarter wave line.	7M	CO	BL
	b)	Derive the expressions for VSWR in terms of reflection coefficient	7M	CO	BL

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