Code No: P18EET01 R18

HALL TICKET NUMBER

PACE INSTITUTE OF TECHNOLOGY & SCIENCES::ONGOLE
(AUTONOMOUS)
II B.TECH I SEMESTER END REGULAR/SUPPLEMENTARY EXAMINATIONS, JAN - 2023

ELECTRICAL CIRCUIT ANALYSIS

(EEE Branch)

Time: 3 hours Max. Marks: 60

Note: Question Paper consists of Two parts (Part-A and Part-B)

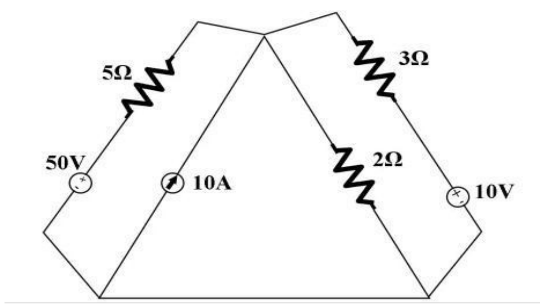
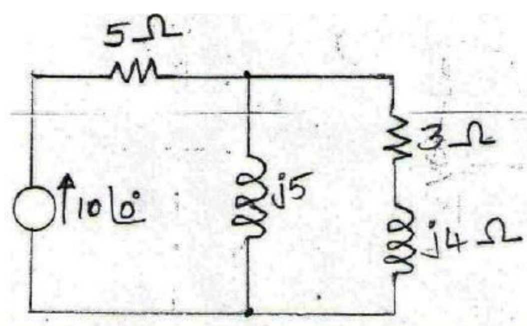
PART-A

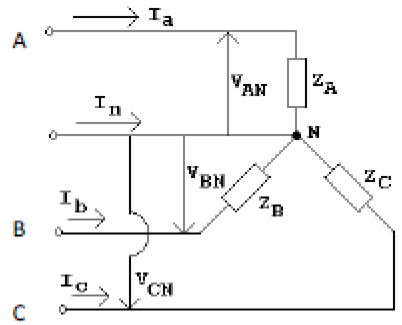
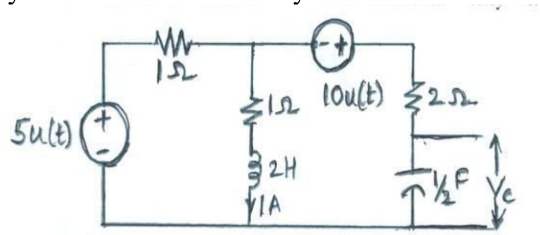
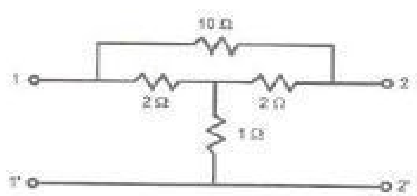
Answer all the questions in Part-A (5X2=10M)

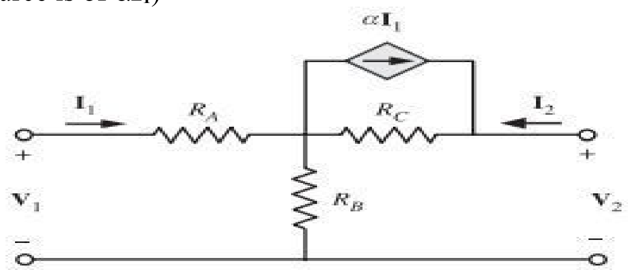
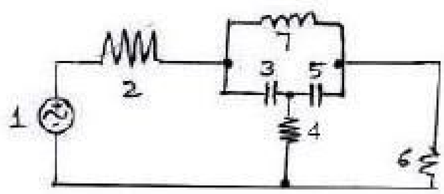
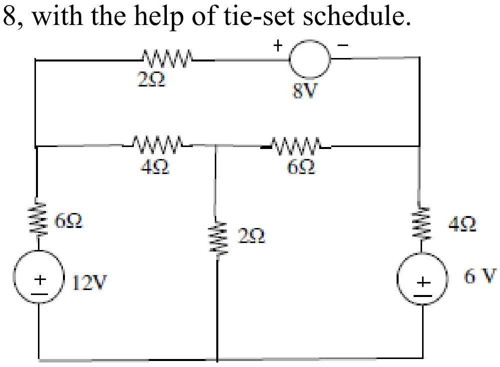
Q.No.		Questions	Marks	CO	KL
1	a)	State Thevenin’s theorem.	[2M]	1	1
	b)	At a particular instant, the R phase voltage of a balanced three phase system is 40V , and Y phase voltage is - 80 V . What will be the voltage of B phase at that instant?	[2M]	2	1
	c)	Write the properties of series resonance	[2M]	3	1
	d)	What is reciprocal condition of ABCD Parameters?	[2M]	4	1
	e)	How do you form tree and co-tree in the network topology?	[2M]	5	1

PART-B

Answer One Question from each UNIT (5X10=50M)

Q.No.		Questions	Marks	CO	KL
		UNIT-I			
2.		Using mesh analysis, find the current flow through the 50V source in the network of figure -1  Figure -1	[10M]	1	3
		OR			
3.		State compensation theorem. In the network shown in below figure-2, the 2 ohm resister is changed to 8 ohm. Determine the resulting change in current through the (3+j4) ohm impedance branch using compensation theorem.  Figure -2	[10M]	1	1

UNIT-II					
4.	a)	Draw phasor diagram of currents for a balanced delta-connected supply system and Establish relation between line currents and phase currents	[5M]	2	2
	b)	A balanced 3- phase, 3-wire 50 Hz, 220 V supply is given to a load consisting of three impedances each of (3+j4) ohms connected in star. Determine the line and phase voltages and also currents.	[5M]	2	2
OR					
5.		The unbalanced star connected load shown in Figure -3 has balanced voltages of 100 V with abc sequence. Calculate the line currents and neutral currents. Take Z_A = 15 Ohm , Z_B = (10 + j5) Ohm, Z_C = (6-j8) Ohm.  Figure – 3	[10M]	2	3
UNIT-III					
6.	a)	What is Coefficient of Coupling and derive an expression for the Coefficient of Coupling 'k'	[5M]	3	2
	b)	Compare series resonance with parallel resonance.	[5M]	3	2
OR					
7.		Find the voltage across the capacitor shown in Figure -4 using Laplace transform. Verify with time domain analysis.  Figure -4	[10M]	3	3
UNIT-IV					
8.		Obtain the Z- parameters and ABCD parameters of the circuit shown in Figure – 5 .  Figure – 5	[10M]	4	3
OR					

9.		For the network shown in Figure – 6 below find hybrid parameters(the dependent source is of αI_1)  Figure – 6	[10M]	4	3
		UNIT-V			
10.	a)	Define the Basic cut set and tie set matrices for planar networks	[5M]	5	2
	b)	Draw the graph of the network shown in Figure – 7 and write down the tie-set Matrix  Figure – 7	[5M]	5	2
		OR			
11.		Find out currents through and voltages across all branches of the network shown in figure - 8, with the help of tie-set schedule.  Figure – 8	[10M]	5	3

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