U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

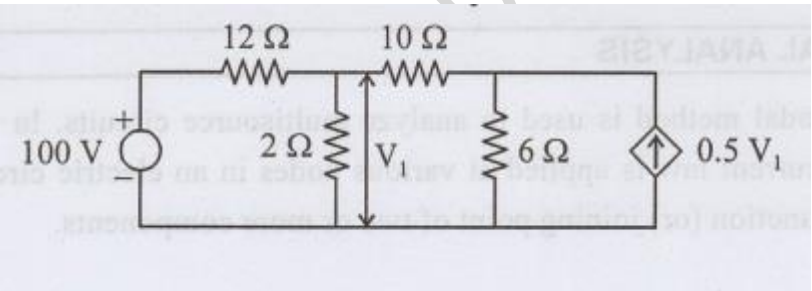
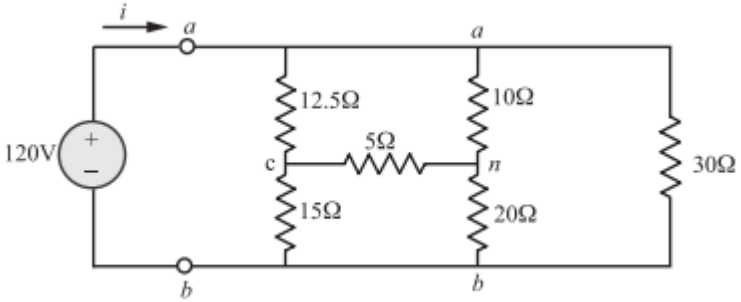
Autonomous Institute Affiliated to VTU

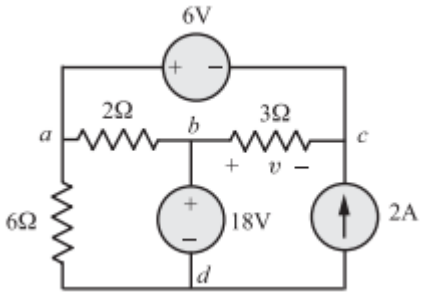
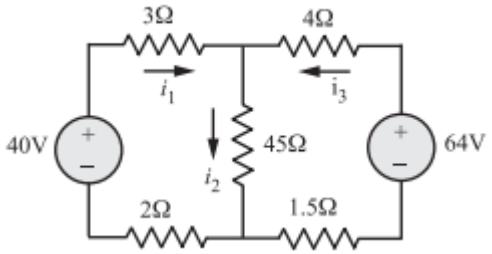
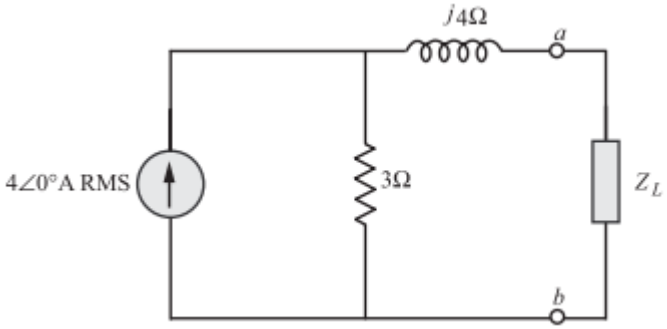
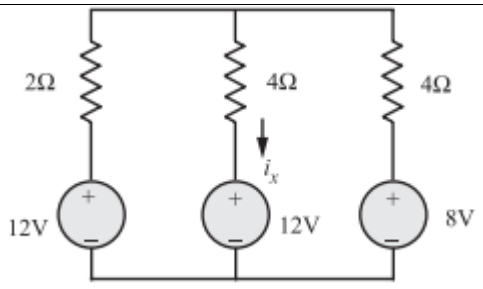
June / July 2024 Semester End Make-Up Examinations

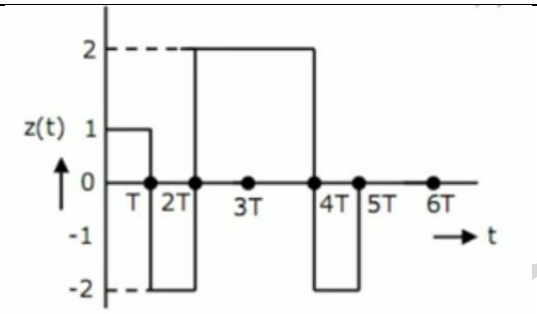
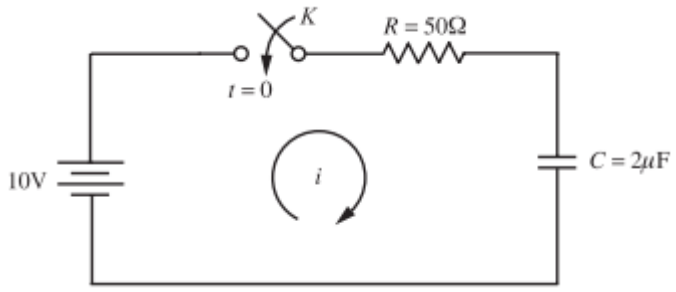
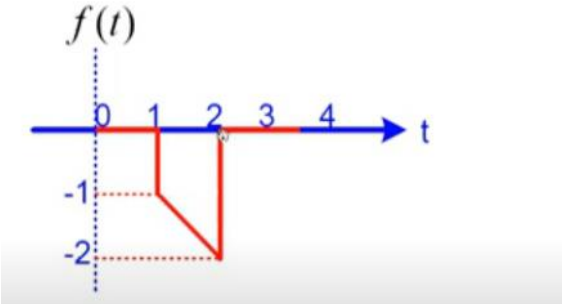
Programme: B.E. **Semester: III**
Branch: ES CLUSTER(EC, EE, EI, ET &MD) **Duration: 3 hrs.**
Course Code: 23ES3PCNAL **Max Marks: 100**
Course: Network Analysis

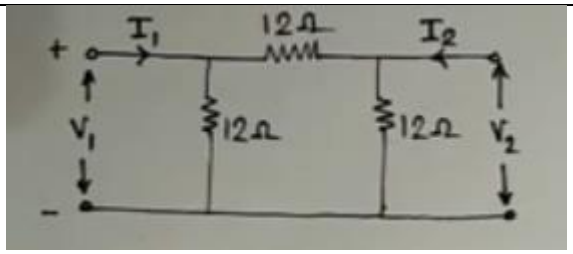
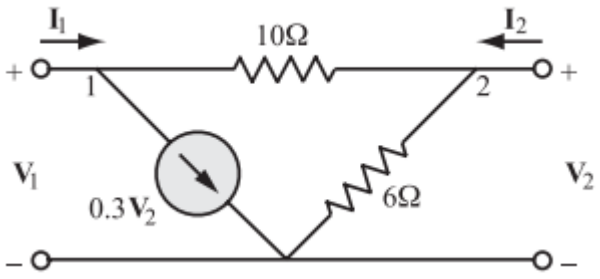
Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		UNIT - I	CO	PO	Marks
1	a)	With an example illustrate source shifting concept in network analysis.	CO1	PO 1	4
	b)	For the circuit shown in Fig 1.1. Find V_1 using mesh analysis technique.  Fig 1.1	CO 1	PO 1	8
	c)	 Fig 1.2 Analyze the circuit shown in Fig 1.2 using Star Delta concept and find i	CO 2	PO 2	8
		OR			
2	a)	Discuss the concept of super node with relevant example	-	-	4

		b)	 Fig 2.1 Apply nodal analysis technique for the circuit shown in Fig 2.1 and find *v*	***CO 1***	***PO 1***	**8**
		c)	 Fig 2.2 For the circuit shown in Fig 2.2 find i_1,i_2 and i_3	***CO 2***	***PO 2***	**8**
			UNIT - II			
3		a)	State and explain Norton's Theorem as applied to electrical network.	***CO 1***	***PO 1***	**4**
		b)	 Fig 4.1 For the circuit shown in Fig 4.1 calculate R_L for maximum power transfer and also find maximum power	***CO 1***	***PO 1***	**8**
		c)	 For the circuit shown in Fig 4.2 calculate i_x using superposition theorem	***CO 2***	***PO 2***	**8**

			UNIT - III			
	4	a)	Derive an expression for resonant frequency and quality factor in parallel resonance circuit.	***CO 1***	***PO 1***	**10**
		b)	A series RLC circuit consists of R =10 Ω, L=0.01 H, and C =0.01μF, is connected across a supply of 10 mV. Determine, i)f_0 ii) Q-factor iii) BW iv) f_1 and f_2 v) I_0	***CO 1***	***PO 1***	**10**
			UNIT - IV			
	5	a)	State and prove final value theorem	***CO 1***	***PO 1***	**6**
		b)	 Fig 5.1 Find the laplace transform of Z(t) shown in Fig 5.1	***CO 1***	***PO 1***	**7**
		c)	 Fig 5.2 Analyse the circuit shown in Fig 5.2 and find i, di/dt and d^2i/dt^2 at t=0+	***CO 2***	***PO 2***	**7**
			OR			
	6	a)	Find the laplace transform of a delayed ramp waveform	***CO 1***	***PO 1***	**6**
		b)	 Fig 6.1 Find the Laplace transform of the waveform shown in Fig 6.1	***CO 1***	***PO 1***	**7**
		c)	Obtain the expression for transient current in RC series circuit when excited by D.C input at t=0. Also sketch the response.	***CO 2***	***PO 2***	**7**

			UNIT - V			
	7	a)	Define T parameters of a Two port network	-	-	**4**
		b)	 Fig 7.1 Find h parameters for the circuit shown in Fig 7.1	***CO 1***	***PO 1***	**8**
		c)	 Fig 7.2 Using two port network concept Solve the circuit shown in Fig 7.2 and find Z parameters	***CO 2***	***PO2***	**8**

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