U.S.N.										

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

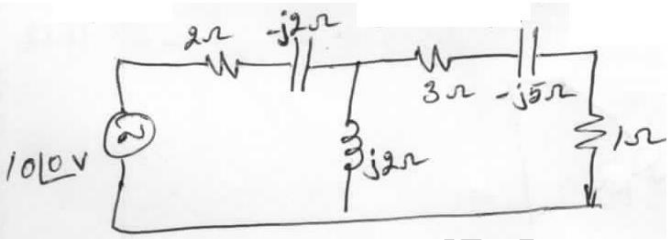
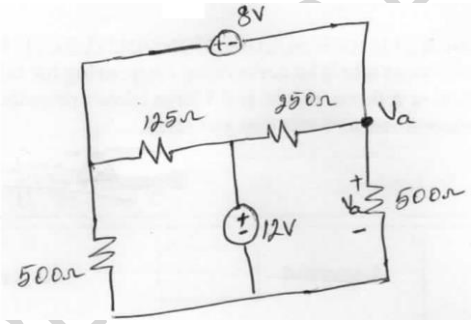
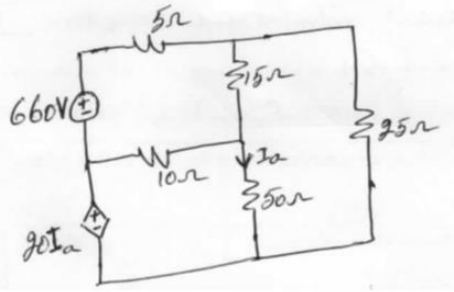
Autonomous Institute Affiliated to VTU

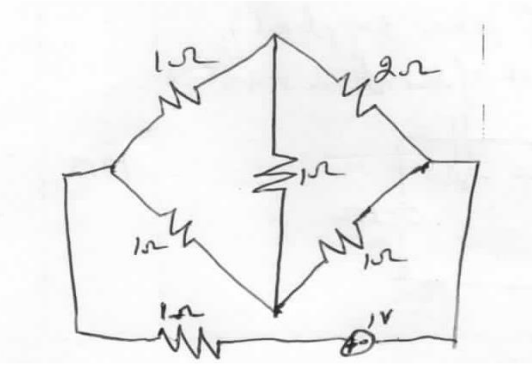
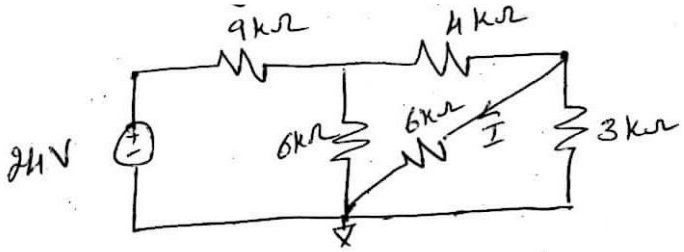
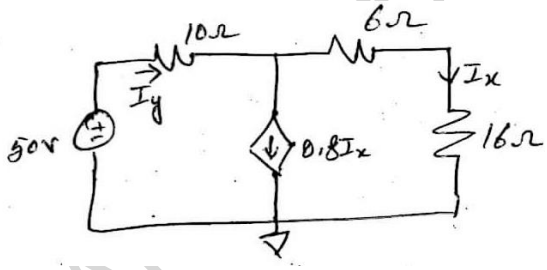
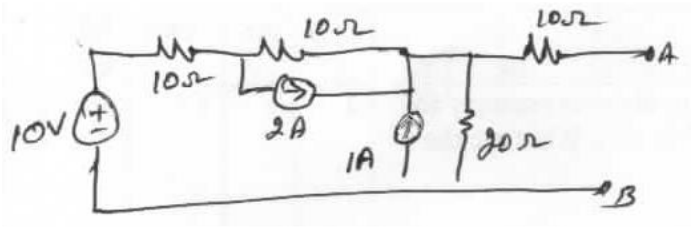
June 2025 Semester End Main Examinations

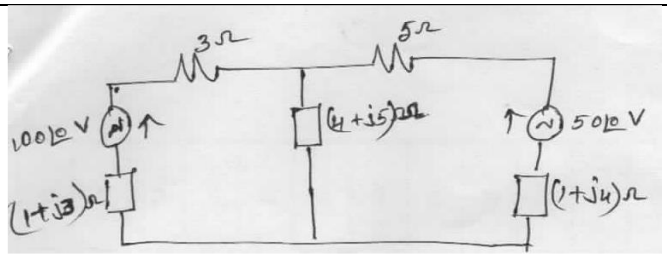
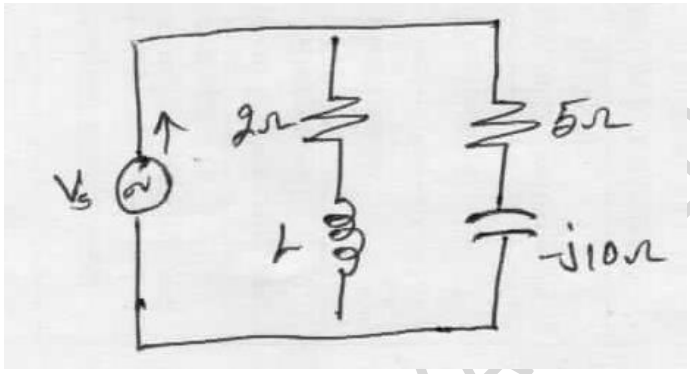
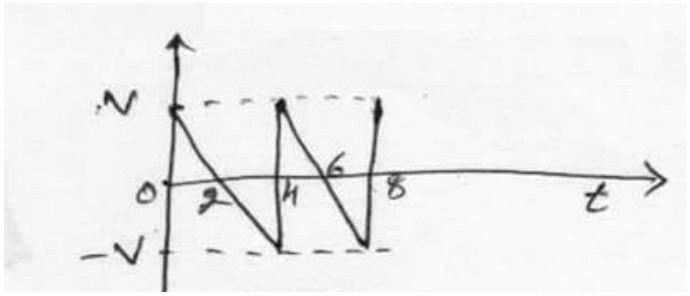
Programme: B.E. **Semester: III**
Branch: EEE/ECE/MD/ETE/EIE **Duration: 3 hrs.**
Course Code: 23ES3PCNAL **Max Marks: 100**
Course: Network Analysis

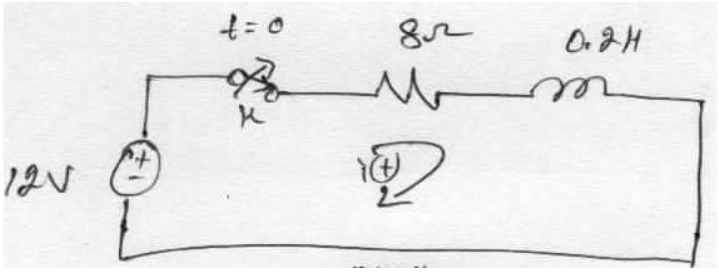
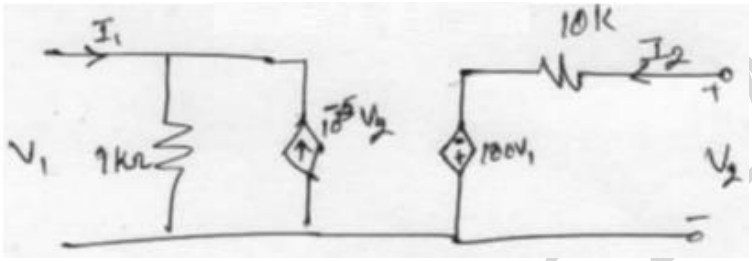
Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

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)	Find the power supplied by the source and power absorbed by each of the network resistors for the fig.1a  Fig 1a.	CO1	PO1	10
	b)	Find Va for the circuit shown in fig 1b using nodal analysis method.  Fig 1b.	CO1	PO1	10
		OR			
2	a)	Use mesh current method to find the power delivered by the dependent voltage source for the fig 2a.  Fig 2a	CO1	PO1	10

		b)	With the help of star-delta transformation find the total current in the network for the fig 2b.  Fig 2b	*CO1*	*PO1*	**10**
			UNIT - II			
	3	a)	State the reciprocity theorem. Prove that the circuit shown in fig 3a satisfies the reciprocity theorem by calculating current I  Fig 3a	*CO1*	*PO1*	**10**
		b)	State Norton theorem. Find the current through 16ohm load resistor for the circuit shown in fig 3b.  Fig 3b	*CO1*	*PO1*	**10**
			OR			
	4	a)	Obtain Norton's Equivalent at terminals AB. Also find the power dissipated in 5ohm resistor connected at terminals AB for the circuit shown in fig.4a  fig.4a	*CO1*	*PO1*	**10**
		b)	Find Current in branch AB using Superposition Theorem for the circuit shown in fig.4b	*CO1*	*PO1*	**10**

			 fig.4b			
			UNIT - III			
5	a)	What is the resonant frequency for the series connected RLC circuit? Derive an expression for the resonant frequency for the same.	***CO1***	***PO1***	**10**
	b)	Find the value of L for which the circuit shown is resonant at W=500rad/sec for fig 5b  Fig 5b	***CO1***	***PO1***	**10**
		OR			
6	a)	Explain the following with reference to the series resonance i. Resonant frequency ii. Bandwidth iii. Selectivity iv. Q-factor	***CO1***	***PO1***	**10**
	b)	Derive the expression for resonant frequency and bandwidth for a parallel resonant circuit	***CO1***	***PO1***	**10**
		UNIT - IV			
7	a)	Explain the Initial and Final state of inductor.	-	-	**10**
	b)	Determine the Laplace transform of the function shown in fig 7b  fig 7b.	***CO2***	***PO2***	**10**
		OR			
8	a)	State and Prove Initial and Final value theorem	***CO1***	***PO1***	**10**

		b)	For the circuit shown in fig. 8b find i(0+), d/dt i(0+), d2/dt2i(0+)  Fig.8b	*CO2*	*PO2*	**10**
			UNIT - V			
	9	a)	Define Z, Y, T and H parameters. Express the relation between Z and Y parameter	*CO1*	*PO1*	**12**
		b)	Obtain z parameters for the circuit shown in fig 9b  Fig 9b	*CO1*	*PO1*	**8**
			OR			
	10	a)	Obtain T parameters in terms of h-Parameters	*CO1*	*PO1*	**10**
		b)	Prove that AD-BC=1 in two port network	*CO1*	*PO1*	**10**

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