U.S.N.										

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

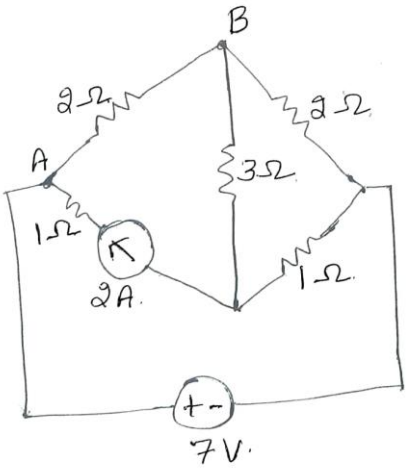
Autonomous Institute Affiliated to VTU

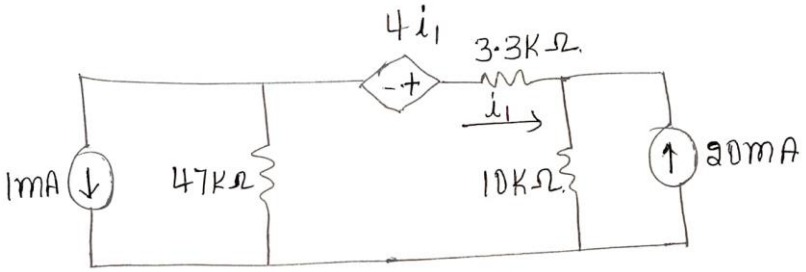
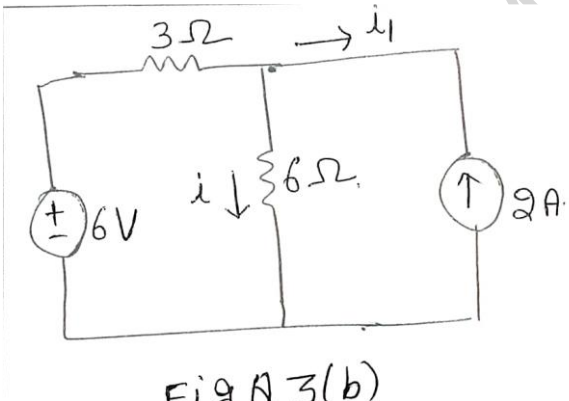
April 2024 Semester End Main Examinations

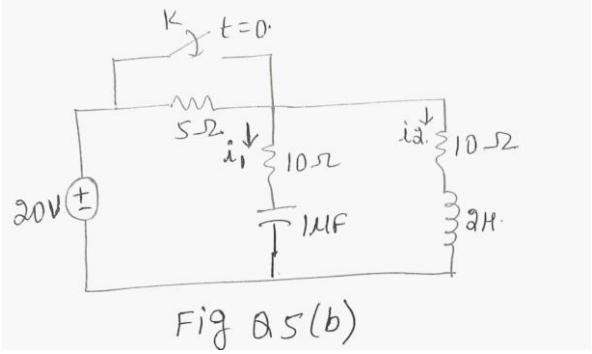
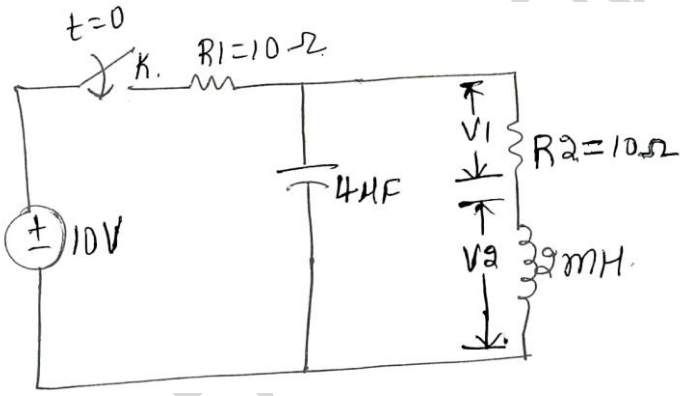
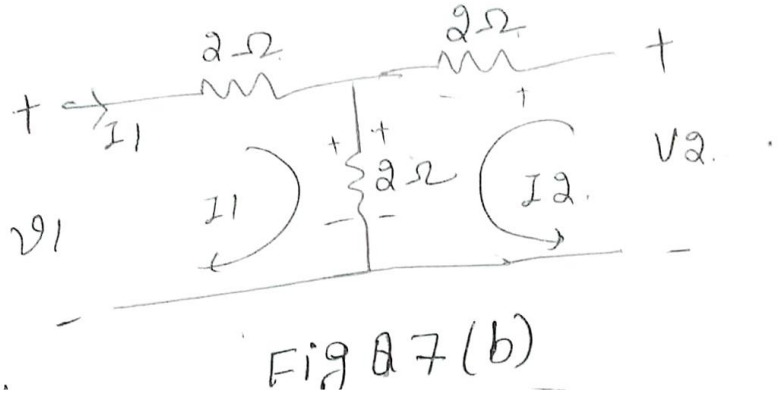
Programme: B.E. **Semester: III**
Branch: ES CLUSTER (MD & EC) **Duration: 3 hrs.**
Course Code: 22ES3PCNAL **Max Marks: 100**
Course: Network Analysis

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)	Explain the following with relevant equations (i)Delta-star conversion (ii)Star-Delta conversion	-	-	**10**
	b)	Find the current in branch 'AB'(Ref. Fig Q1(b)).  Fig Q1(b)	CO 1	PO 1	**6**
	c)	Discuss the independent sources as applied to Electrical network.	CO 1	PO 1	**4**
		OR			
2	a)	Briefly explain the classification of electrical network.	-	-	**10**

		b)	Find current i_1 using source transformation (Ref. Fig Q2(b)).  Fig Q 2(b)	CO 1	PO 1	6
		c)	Explain super node analysis with an example.	CO 1	PO 1	4
			UNIT - II			
	3	a)	State and explain Thevenin's theorem.	CO 1	PO 1	10
		b)	Find the current in the 6Ω resistor using the principle of superposition (Ref. Fig Q3(b)).  Fig Q 3(b)	CO 1	PO 1	4
		c)	State and prove Nortons theorem.	CO 1	PO 1	6
			UNIT - III			
	4	a)	Obtain an expression for resonant frequency in a series RLC circuit.	CO 1	PO 1	10
		b)	In a parallel RLC circuit, C=50μF.Determine BW,Q,R and L for the following cases (i)W_0=100, W_2=120 (ii)W_0=100,W_1=80	CO 1	PO 1	7
		c)	Explain Duality of networks.	-	-	3
			UNIT - IV			
	5	a)	Find the laplace transform of each of the following functions: (i) $x(t) = 2t\,u(t) - 4\frac{d}{dt}\delta(t)$ (ii)x(t)=5u(t/3) (iii)$x(t)=5e^{-t/2}u(t)$	CO 2	PO 2	10

		b)	In the circuit (Ref. Fig Q5(b)), steady state is reached with switch 'k' open. The switch is closed at t=0. Find i_1,i_2,di_1/dt and di_2/dt at $t = 0^+$  Fig Q5(b)	*CO 2*	*PO 2*	**10**
			OR			
	6	a)	State and prove initial and final value theorem.	*CO 2*	*PO 2*	**10**
		b)	The switch 'k' is closed at t=0 (Ref. Fig Q6(b)). Find (i)V_1 & V_2 at $t = 0^+$ (ii) V_1 & V_2 at $t = \infty$ (iii)dV_1/dt & dV_2/dt at $t = 0^+$ 	*CO 2*	*PO 2*	**10**
			UNIT - V			
	7	a)	Obtain the Z-parameters in terms of ABCD parameters.	*CO 2*	*PO 2*	**10**
		b)	Find Z & Y parameter for the circuit shown below (Ref. Fig Q7(b))  Fig Q7(b)	*CO 2*	*PO 2*	**10**

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