



SRI KRISHNA INSTITUTE OF TECHNOLOGY

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Department of Electronics & Communication Engineering

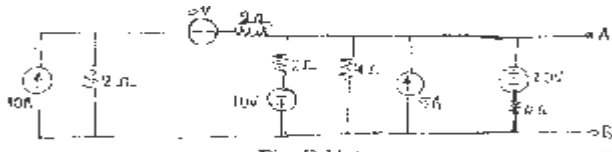
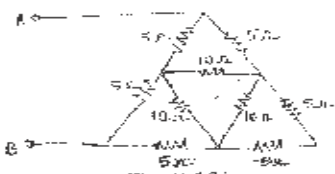
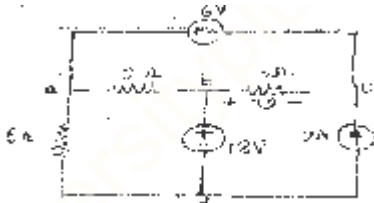
Subject Name: Network Analysis

Subject Code: BEC304

SEM : DIV : A

Faculty : Nagaraja M

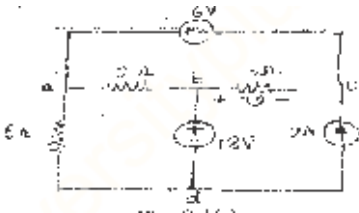
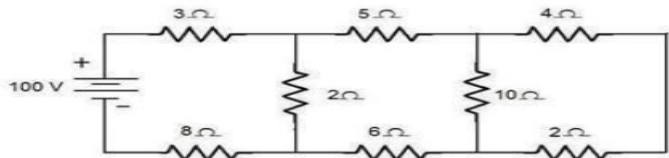
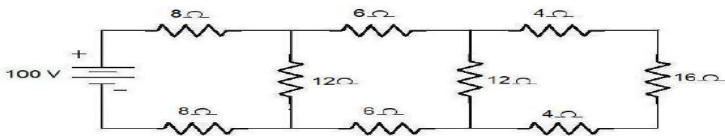
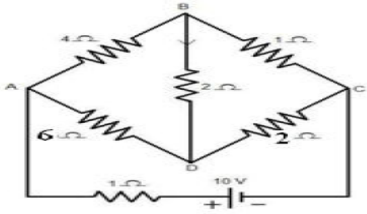
Module-1 Question Bank

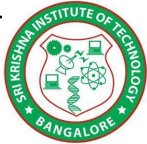
SL#	Question	CO	Level	Marks
1	List the differences between linear and nonlinear circuits, Active and passive elements.	CO1	L1	5
2	Derive the expression for star to delta and delta to star transformations.	CO1	L3	5
3	Convert the network into single voltage source using source transformations 	CO1	L2	10
4	Draw the equivalent resistance at terminals a and b in the networks. 	CO1	L4	10
5	Find voltage v across 30Ω using nodal analysis 	CO1	L3	10



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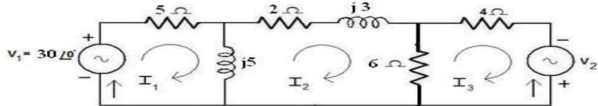
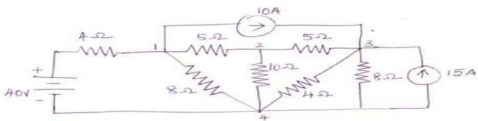
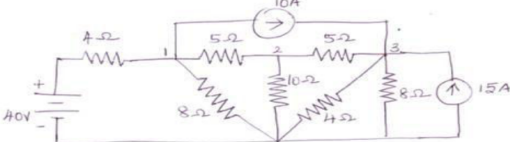
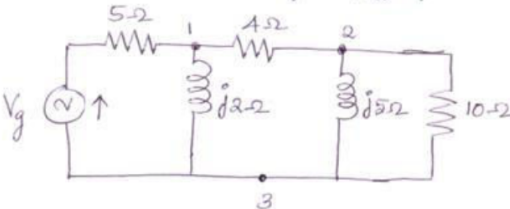
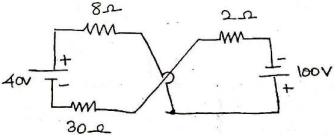
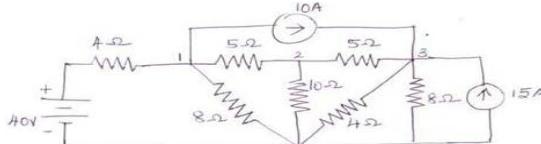
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6	Using source transformation find the power delivered to the load by 50v source. 	CO1	L3	10
7	Find the current through each branch by network reduction technique. 	CO1	L3	10
8	Calculate a) the equivalent resistances across the terminals of the supply, b) total current supplied by the source and c) power delivered to 16 ohm resistor in the circuit shown in figure 	CO1	L3	10
9	In the circuit shown, determine the current through the 2 ohm resistor and the total current delivered by the battery. Use Kirchhoff's laws. 	CO1	L3	10
10	Determine the mesh currents I1 and I2 for the given circuit shown below 	CO1	L3	10



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11	Determine the value of V_2 such that the current through the impedance $(2+j3)$ ohm is zero. 	CO1	L3	10
12	Use Nodal Voltage method and find the power dissipated in the 10Ω resistance on the circuit shown in the fig 	CO1	L3	10
13	Given the nodes 1 and 2 in network of figure, Find the ratio of voltage V_1 / V_2 	CO1	L3	10
14	Given nodes 1 and 2 in the network. Find v_1/v_2. 	CO1	L3	10
15	List the advantages of super mesh analysis.	CO1	L2	5
16	List the advantages of super mesh analysis.	CO1	L2	5
17	Find the current I and voltage across 30Ω of the circuit shown in fig. 	CO1	L3	10
18	Use Nodal Voltage method and estimate the power dissipated in the 10Ω resistance on the circuit shown in the fig. 	CO1	L3	10

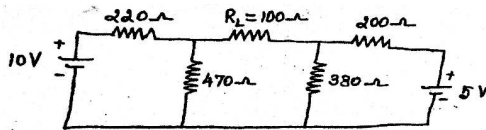
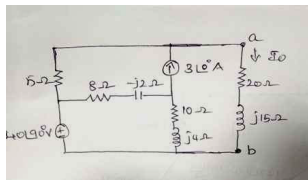
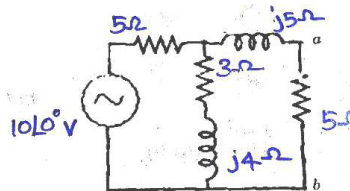


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19	Explain the concept of source transformation?	CO1	L2	5
20	State and explain Kirchhoff's laws?	CO1	L2	5

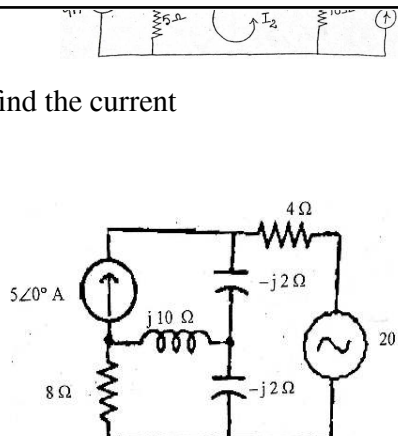
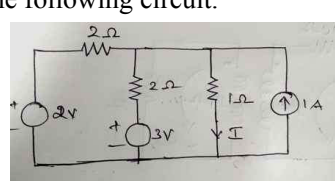
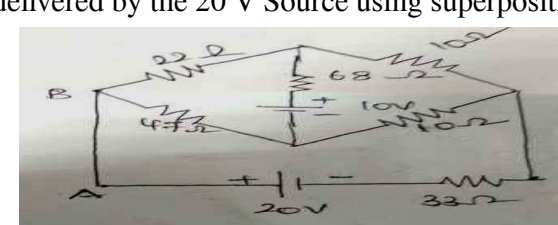
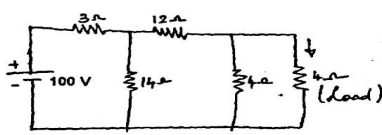
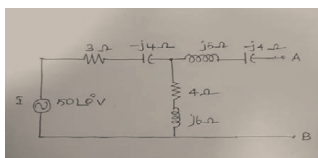
Module-2 Question Bank

SL#	Question	CO	Level	Marks
1	Explain the concept of source transformation?	CO2	L2	5
2	State and explain Kirchhoff's laws?	CO2	L2	5
3		CO2	L3	10
4	Apply Norton theorem to determine current I_0 for the given circuit in fig. 	CO2	L3	10
5	What is the condition for maximum power transfer to the load?	CO2	L2	5
6	Find the current through the branch a-b of the network shown in fig using Thevenin's theorem. 	CO2	L3	10
7	Estimate the current through 5 Ω resistor using superposition theorem, in the circuit shown in fig.	CO2	L2	10



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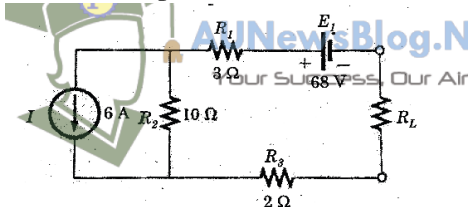
	Use the superposition theorem to find the current through 4Ω resistor in the circuit shown in fig. 			
8	State and explain Superposition theorem?	CO2	L2	5
9	State and explain maximum power transfer theorem/	CO2	L2	5
10	State and explain milliman's theorem.	CO2	L2	5
11	Find Norton's equivalent for the following circuit.	CO2	L3	10
				
12	Find the power delivered by the 20 V Source using superposition theorem.	CO2	L3	10
				
13	state and explain Norton's theorem?	CO2	L2	5
14	Verify the reciprocity theorem for the network shown in fig .	CO2	L3	10
				
15	Determine the Thevenin's equivalent across AB for the given circuit	CO2	L3	10
				



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16	Find the value R_L in the fig for maximum power to R_L and calculate the maximum power.	CO2	L3	10
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Module-3 Question Bank

SL#	Question	CO	Level	Marks
1	Refer the circuit shown in fig .Find $V_c(0+)$. Assume that the switch was closed state for a long time	CO3	L3	10
2	Refer the circuit shown . Find $i_L(0+)$ and $V_c(0+)$. The circuit is in steady state with the switch in closed condition.	CO3	L3	10
3	In the network shown in fig the switch is moved from position 1 to 2 at $t=0$. The steady state has been reached before switching. Calculate i , di/dt and d^2i/dt^2 at $t = 0+$	CO3	L3	10
4	In the given network , the switch K is opened at $t=0$. solve for the values of v , dv/dt and d^2v/dt^2 if $I=2A$, $R=200\Omega$ and $L=1H$	CO3	L3	10
5	In the circuit shown in fig a steady state is reached with switch k open. At $t=0$, the switch is closed. For element values given determine the values of $v_0(0-)$ and $v_0(0+)$	CO3	L3	10



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6	In the network of the fig th switch k is opened at $t=0$ after the network has attained steady state with the switch closed a) find the expression for v_K at $t=0+$ b) If the parameters are adjusted	CO3	L3	10
7	Find the laplace transform of $x(t)$ shown in fig	CO3	L3	5
8	Find the Laplace transform of $x(t)=\sin(2\omega t)u(t)$	CO3	L3	5
9	Find the convolution of $h(t)=e^{-t}$ and $f(t)=e^{-2t}$	CO3	L3	10
10	Find the initial value of	CO3	L3	6
11	Verify final value theorem	CO3	L2	6

Module-4 Question Bank

SL#	Question	CO	Level	Marks
1	Obtain the expression for resonant frequency, bandwidth and Q-factor for parallel R-L-C circuit.	CO4	L2	5
2	Obtain the expression for resonant frequency, bandwidth and Q-factor for Series R-L-C circuit	CO4	L3	5
3	Show that the resonant frequency circuit $f_r^2 = f_1 f_2$ where f_1 and f_2 are the half power frequencies and f_r is the resonant frequency.	CO4	L3	10
4	Write the comparison between series resonance and parallel resonance?	CO4	L2	5
5	In a parallel Resonant circuit shown in figure. (1), find the Resonant frequency, Dynamic Impedance, Bandwidth, Q-factor and Current at resonance?	CO4	L3	10



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6	A series RLC circuit has $R=10\Omega$, $L=0.5H$ and $C=40\mu F$. The applied voltage is 100V. Find (a) Resonant frequency & Quality factor of a coil (b) Bandwidth (c) Upper and lower Half power frequencies (d) Current at resonance & current at half power points (e) Voltage across inductance & voltage across capacitance at resonance.	CO4	L3	10
7	In a parallel resonance circuit (Tank circuit) $R=2\Omega$, $L=1mH$ and $C=10\mu F$, Find the Resonant frequency, Dynamic impedance and Bandwidth.	CO4	L3	10
8	Obtain the expression for resonant frequency for parallel RL-RC circuit.	CO4	L3	5
9	In a parallel Resonant circuit shown in figure. (1), find the Resonant frequency, Dynamic Impedance, Bandwidth, Q-factor and Current at resonance?	CO4	L3	10
10	In a two branch RL-RC rallel resonant circuit $L=0.4H$ and $c=40Mf$. Obtain resonant frequency for the following values of R_L and R_c .	CO4	L3	10
11	A parallel RLC circuit has a quality factor of 100at unity power factor and operates at 1 khz and dissipates 1 warr when driven by 1A at 1khz . Find bandwidth , R,L,C.	CO4	L3	10

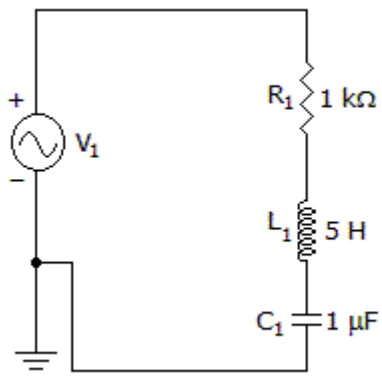
Module-5 Question Bank

SL#	Question	CO	Level	Marks
1	Define ABCD Parameters. Express relation between y and ABCD p[arameters	CO5	L2	5
2	Obtain hybrid parameters in terms of Z parameters	CO5	L2	5



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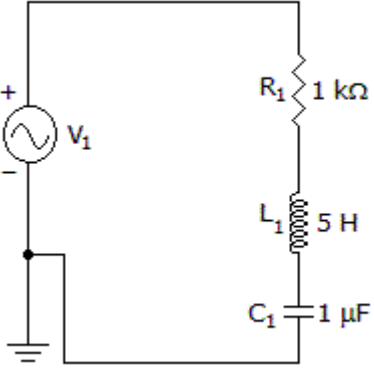
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3	Find the Z – parameter Z_{11} in the circuit shown below.	CO5	L3	10
4	Find the Y parameters of the Circuit shown above	CO5	L3	10
5	Find the Transmission Parameters of the Circuit shown above	CO5	L3	10
6	Find the Hybrid parameters of the circuit shown above	CO5	L3	10
7	Obtain h parameters in terms of Z Parameters	CO5	L3	10
8	Obtain h parameters in terms of Y Parameters	CO5	L3	10
9	Obtain h parameters in terms of transmission Parameters	CO5	L3	10
10	What is the quality factor for the following circuit? 	CO5	L3	10



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11	What is the bandwidth of the following circuit?	CO5	L3	10
				

Faculty Signature