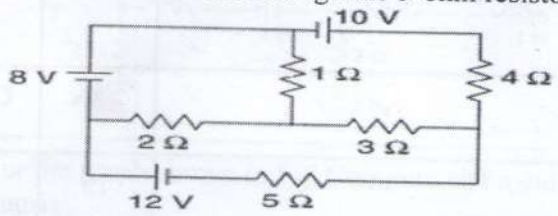
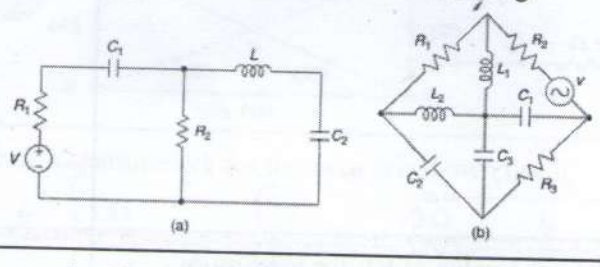
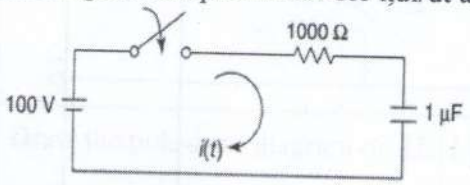
EXTC KT

K. J. Somaiya Institute of Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

Nov – Dec 2024
Program: B.Tech Scheme IIB/II
Backlog Examination: SY Semester: III
Course Code: EXC305and Course Name: Electrical Network Theory
Date of Exam: 30/11/24 Duration: 02 Hours Max. Marks: 45

Instructions:
(1)All questions are compulsory.
(2) Draw neat diagrams wherever applicable.
(3) Assume suitable data, if necessary.

		Max. Marks	CO	BT level
Q 1	Solve any 5 questions out of six.	15		
i)	Determine the current through the 5-ohm resistor of the network shown in fig 	3	CO1	AP
ii)	Draw directed graph of the networks shown in Fig. 	3	CO2	R
iii)	In the network of Fig the switch is closed at t = 0. With the capacitor uncharged, Compute value for i,di/dt at t=0+ 	3	CO3	Ap
iv)	Calculate the Z parameters for the network shown in Fig.	3	CO4	Ap

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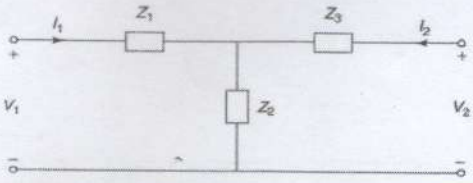
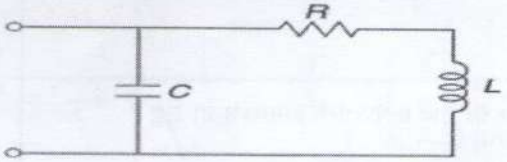
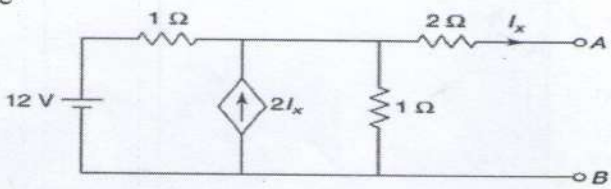
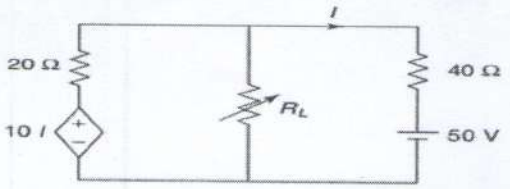
				
v)	Find the driving-point impedance function of a one-port network shown in Fig 	3	CO5	AP
vi)	Enlist the properties of positive real functions.	3	CO6	U
Q.2	Solve any three questions out of four.	15		
i)	Compute V_{Th} and R_{Th} between terminals A and B of the network shown in Fig. 		CO1	Ap
ii)	For the network shown in Fig. Calculate the value of RL for maximum power transfer. Also, calculate maximum power. 		CO1	Ap
iii)	Find the Laplace transforms of following functions: i..Constant Function K ,ii..Function f(t),iii.3.Unit step function iv..Unit ramp function, v..Unit impulse function		CO3	R

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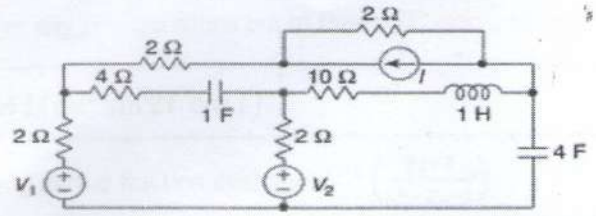
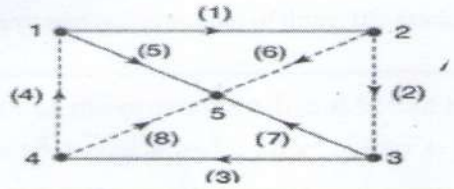
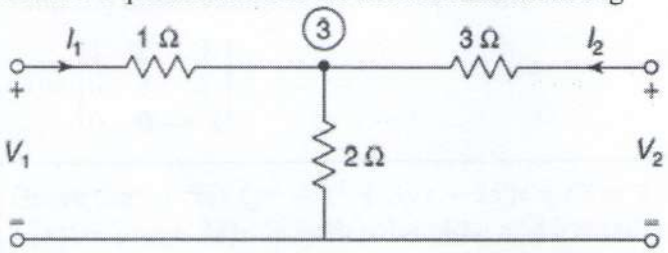
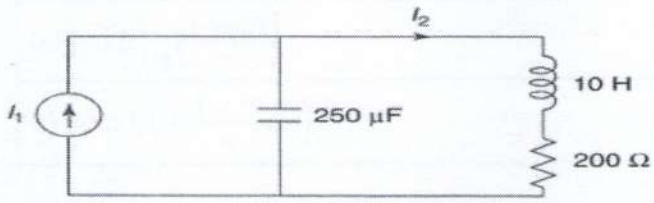
iv)	Test whether the following function is positive real function $F(s) = \frac{s^2 + 1}{s^3 + 4s}$		CO6	Ap
Q.3	Solve any three questions out of four.	15		
i)	For the network shown in Fig. draw the oriented graph and Estimate the incidence matrix 		CO2	U
ii)	For the graph shown in Fig Compute the incidence matrix and f-cutset matrix. 		CO2	Ap
iii)	Calculate Y-parameters for the network shown in Fig 		CO4	Ap
iv)	Draw the pole-zero diagram of I2/I1 for the network shown in Fig 		CO5	Ap