

SHRI MATA VAISHNO DEVI UNIVERSITY, KATRA

School of Electronics and Communication Engineering

B. Tech. (ECE/EE) Minor-1 Examination (Even) 2018-19

Entry No: 18b2c014

Total Number of Pages: [01]

Date: 06/Feb/2019

Total Number of Questions: [3]

Course Title: Network Analysis and Synthesis

Course Code: ECL1022

Time Allowed: 1.5 Hours

Max Marks: [20]

Instructions / NOTE

- Attempt All Questions.
- Assume an appropriate data / information, wherever necessary / missing.

Section - A

Q1.	Answer the following:	[05]	CO1
	<ol style="list-style-type: none"> The direction of the cut-set isas the direction of the branch current Potential difference in electrical terminology is known as..... Potential difference in electrical terminology is known as..... For Tie-set matrix, if the direction of current is same as loop current, then we place in the matrix. While considering Reciprocity theorem, we consider ratio of response to excitation as ratio of..... 		
Q2.	<ol style="list-style-type: none"> Find current and voltages in all branches of the circuit below 	[3]	CO1
	<ol style="list-style-type: none"> Verify Compensation Theorem in circuit below when R is changed from 4 to 2 ohms 	[3]	

Section - B

Q3.	a. For the network of the figure , draw the graph and write a tie-set schedule. Using the tie-set schedule obtain the loop equations and find the currents in all branches.	[03]	CO1,
		[03]	
	b. Verify Tellegen's theorem in the circuit below	[03]	
		[03]	

Course Outcomes: After Successful Completion of this Course, students shall be able to;

CO1: understanding the various laws and theorems related to electric networks.

CO2. understanding the concept of two port networks.

CO3. familiarization with network synthesis.

CO	Questions Mapping	Total Marks	Total Number of Students (to be appeared in Exam)
CO1	1	20	
CO2			
CO3			

SHRI MATA VAISHNO DEVI UNIVERSITY, KATRA
School of Electronics and Communication Engineering
B. Tech. (ECE/EE) Minor-II Examination (Even) 2018-19

Entry No: 18 BE C 06 G

Total Number of Pages: [01]

Date: 18/03/19

Total Number of Questions: [3]

Course Title: Network Analysis and Synthesis

Course Code: ECL1022

Max Marks: [20]

Time Allowed: 1.5 Hours

Instructions / NOTE

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Section – A

Q1.	Answer the following:	[06]	CO1
	1. The Laplace transform of te^t is.....		
	2. If $F(s)$ is the Laplace transform of function $f(t)$, then Laplace transform of $\int f(\tau)d\tau$ with limits 0 to t		
Q2.	(3) The Laplace Transform of a function $F(s) = 1/(s^2(s+1))$ The $f(t)$ is.....	[4]	CO1
	Assume $f(t) = \sin(wt)$ plot		
	1. $f(t)$ 2. $f(t)U(t)$ (3). $f(t-t_0)U(t-t_0)$ (4). $f(t-t_0)U(t)$		

Section – B

Q3.	a. In the ckt. Shown below determine the voltage $v(t)$ across capacitor for $t > 0$ given initial voltage on the capacitor as 10 volts	[05]	CO1,
		[05]	
	b. A system has a transfer function $H(s) = 1 / ((s^2 + s + 1)(s + 1))$. Find the response of the system when the excitation is $x(t) = (1 + e^{-3t} - e^{-t})U(t)$		

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CO2			
CO3			

SHRI MATA VAISHNO DEVI UNIVERSITY, KATRA
School of Electronics and Communication Engineering
B. Tech. (ECE/EE) Major Examination (Even) 2018-19

Entry No:

V8 b2c0+4

Total Number of Pages: [01]

Date: 11/April/2019

Course Title: Network Analysis and Synthesis

Total Number of Questions

Course Code: ECL1022

[1]

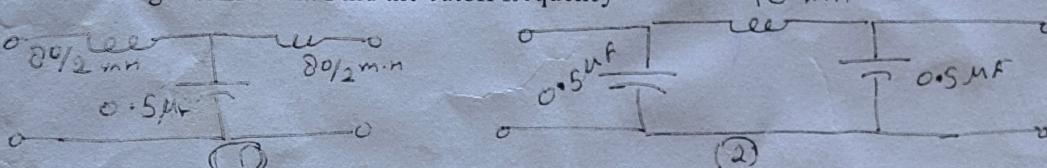
Time Allowed: 3 Hours

Max Marks: [50]

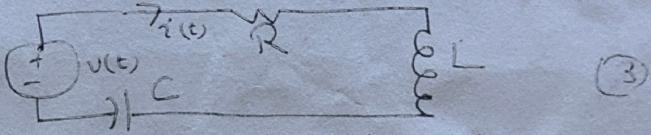
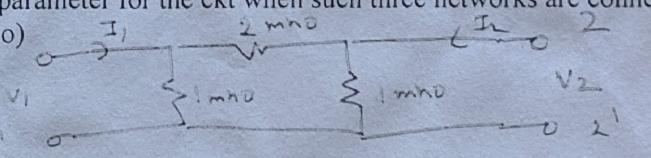
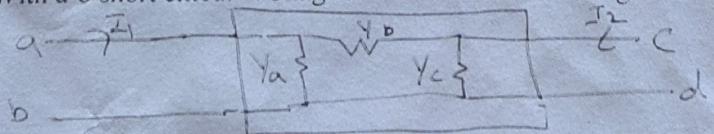
Instructions / NOTE

- Attempt All Questions in sequence only. No Separate /extra answer sheet to be used.
- Assume an appropriate data / information, wherever necessary / missing.

Section – A

Q1.	Write short notes: ✓ 1. Cut Set Matrix Vs Incidence matrix in network graph theory ✓ 2. Compensation theorem in electrical network ✓ 3. Source Transformations ✓ 4. List five properties of LT ✓ 5. Hurwitz polynomials	2*5	CO 1,2
Q2.	a. Determination of "f _c " for constant K-type High pass Filter for T and π type filters b. For the given LPF ckt. Find the cutoff frequency 	5	CO 1,2,3

Section – B

Q3.	a. For the given ckt using Laplace transform find the current i(t) considering I(s) having two poles s ₁ and s ₂ . 1. Case1: s ₁ =s ₂ 2. Case 2: s ₁ ≠s ₂ 	5	CO 1,2,3
Q4.	a. Find the equivalent Y parameter for the ckt when such three networks are connected in parallel (show connections also) 	5*2	5
Q5.	b. Synthesis First foster and cauer form for the LC driving point impedance given by $((s^2+1)(s^2+16)) / s(s^2+4)$ 	5	

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CO1	1,2,	20	
CO2	1,2,3	30	
CO3	1,2,3,4,5	50	

(Q3 = 10 marks)

(Q4 = 10 marks)

(Q5 = 5 marks)

Page 1 of