Reg. No.



## III SEMESTER B.TECH (ELECTRICAL & ELECTRONICS ENGINEERING) MAKE UP EXAMINATIONS, DECEMBER 2019

## **ELECTRICAL CIRCUIT ANALYSIS [ELE 2153]**

REVISED CREDIT SYSTEM

Time:	3 Hours	Date: 20 December 2019	Max. Marks:	: 50
Instructions to Candidates:				
	<ul> <li>Answer ALL the questions</li> </ul>			
	<ul> <li>Missing data may be suital</li> </ul>	bly assumed.		
1 ^	In the circuit of Fig. 1.4 fir	ad the value of P and hence the value of m	avimum	
14.	power transferred to R.		( <b>0</b> ,	3)
1B.	In the circuit of Fig 1B, fir theorem.	nd the current through $10\Omega$ resistor using	Norton's <b>(0</b> ,	3)
1C.	Find the response $y(t) = x$	c(t) * h(t)		
	Where $x(t) = 2u(t) - u(t - t)$	1) $-u(t-2)$ and $h(t) = u(t) - u(t-3)$	(0	4)
2A.	A continuous time, aperio following:	odic signal x(t) is shown in Fig 2A. Sketch t	:he	
	$(i)x[-\frac{2}{2}t-1]$	(ii) $x\left(\frac{1}{2}t\right)\partial(t-1)$	(0	3)
2R	The output of a system is	given by $y(t) = t * x(t)$ , where x(t) is the	input	- /
201	signal given by $x(t) = \cos(t)$	$(3t + \frac{\pi}{2})^2 - \sin(5t - \frac{\pi}{2}) + \cos(\frac{2}{2}t + \frac{\pi}{2})$ . Check	whether	
	(i) signal $x(t)$ is periodic.	If periodic, determine the fundamental pe	eriod.	
	(ii) the system is stable.		(0	2)
20	A parallal RLC circuit wit	$h P = E O I = 1 m H and C = 10 \mu E is avait$	od by a	5)
20.	current source of 10 u(t)	$K = 502$ , $L = 111111$ and $C = 10\mu F$ is excit.	ing time	
	domain analysis.		<b>(0</b>	4)
37	In the circuit of Fig. 34 s	witch is moved from $A$ to $B$ at $t = 0$ after a	attaining	
54.	steady state at position A	. Find i(t) for $t > 0$ using time domain ana	lysis. (0.	3)
3B.	Find the Laplace Transform of the periodic waveform shown in Fig. 3B.		зв. <i>(0</i> .	3)
3C.	In the network of Fig. 3C	switch is changed from A to B at $t = 0$	Find the	- /
	current through the capac	citor using Laplace Transform method.	( <b>0</b> ,	4)
4A.	Find the h parameters of	the network shown in Fig. 4A.	(0	4)
4B.	Decompose the network	shown in Fig. 4B into two 2 port n	etworks	,
	connected in cascade and	I hence find the overall T parameters.	(0	4)
4C.	A two port network is def	fined by the parameters: $Y_{21} = 6$ , $Y_{22} = 8$ ,	$h_{11} = 5,$	
	$h_{12} = 2$ . Find the T param	neters.	(0.	2)
5A.	Write the Trigonometric F Also, plot the magnitude	Fourier Series of the waveform shown in I and phase spectra.	Fig.Q5A.	5)

- 5B. Find the Fourier Transform of the signal shown in Fig 5B. Also, plot the magnitude spectrum.
- Find the Fourier Transform of  $f(t)=e^{-2t}Cos(\pi t)u(t)$  using the properties of 5C. Fourier Transforms. (02)























(03)