Reg. No.



III SEMESTER B.TECH (ELECTRICAL & ELECTRONICS ENGINEERING) END SEMESTER EXAMINATIONS, NOVEMBER 2019

ELECTRICAL CIRCUIT ANALYSIS [ELE 2153]

REVISED CREDIT SYSTEM

Time:	3 Hours	Date: 15 November 2019	Max. N	larks: 50
Instru	 ctions to Candidates: Answer ALL the questions. Missing data may be suitably 	y assumed.		
1A.	For the circuit shown in F across R_L .	ig.Q1A, draw the Thevenin`s equivalen	t circuit	t (04)
1B.	For the circuit shown in Fi Superposition theorem.	g.Q1B, find the current through (3+j4)	Ω using	(03)
1C.	Determine the output response input $x(t)$ is as shown in Fig.	onse y(t), when the impulse response h(g.Q1C.	t) for ar	(03)
2A.	Determine whether the fol find the energy and the por	lowing signal is energy or power signal a wer of the signal. $(2(1-\frac{ t }{ t }): for t \le 4$	and also)
2B.	x(t) The first derivative of the equation for f(t) and sket $\int_{-\infty}^{\infty} f(t) dt = 0.$	$f(1 = \begin{cases} 1 & 4 \end{pmatrix}, \text{ or for } = 1 \\ 0 & ; otherwise \end{cases}$ e function f(t) is shown in Fig.Q2B. Ob sch it. Also, determine the value of `K'	tain the so that	(03)
2C.	For the network shown in I $t = 0$. Switch is in position time domain analysis.	Fig.Q2C, switch is moved from position 1 n 1 for a long time. Determine i(t) for t>	to 2 at 0 using	(04)
3A.	Find the Laplace transform	of the periodic waveform shown in Fig.Q	3A.	(03)
3B.	Draw the pole-zero diagra Using pole-zero diagram, fi	m defined by the function $F(s) = \frac{8(s+2)}{(s^2+4s+3)}$ ind the residues at all poles. Hence find f	$\frac{(s^2+9)}{(s^2+2s+5)}$ (t).	(03)
3C.	For the circuit shown in Transform technique. The c is opened at $t=0$.	Fig.Q.3C, find the voltage $v_0(t)$ using circuit is under steady state for $t<0$ and th	Laplace e switch	e (04)
4A .	Determine the admittance Fig.Q4A. Hence, compute t	parameters of the two-port network s he values of the parameters at $s = j0.5$ r	hown ir ad/sec.	(05)
4B.	Two networks A and B a	are connected in parallel. If $[Z_A] = \begin{bmatrix} 14\\20 \end{bmatrix}$	$\binom{4}{6}$ and	1
	$[Y_B] = \begin{bmatrix} 1/s & -1/s \\ -1/s & 1/s \end{bmatrix}$, find the network.	e Transmission (ABCD) parameters of the	e overal	(03)

- **4C.** Derive the h-parameters of the two port circuit shown in Fig.Q4C. **(02)**
- **5A.** Write the exponential Fourier Series of the waveform shown in Fig.Q5A. Also, plot the magnitude and phase spectra. **(05)**
- **5B.** Find the Fourier transform of the function $f(t) = t \cdot e^{-2t} u(t-2)$. **(03)**
- 5C. Find the energy of the signal shown in Fig.Q5C in frequency domain using Parseval's Theorem. (02)

