



Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)



III SEMESTER B.TECH (ELECTRICAL & ELECTRONICS ENGINEERING) END SEMESTER EXAMINATIONS, NOVEMBER 2015

SUBJECT: ELECTRICAL CIRCUIT ANALYSIS [ELE 2101]

REVISED CREDIT SYSTEM

Time: 3 Hours

26 NOVEMBER 2015

MAX. MARKS: 50

Instructions to Candidates:

- ✤ Answer ALL the questions.
- ✤ Missing data may be suitably assumed.

1A. 1B.	In the circuit of Fig. 1A, find the value of maximum power transferred to R. In the circuit of Fig. 1B, find the current through 10Ω resistor using Norton's theorem.	4 4
1C.	In the circuit of Fig. 1C, verify reciprocity theorem for the current I.	2
2A.	For the locus diagram shown in Fig. 2A, draw the circuit configuration and write all the element values. Also, find the value of variable at unity power factor	6
2B.	Sketch the odd and even components of the waveform shown in Fig. 2B.	4
3A.	A series RL circuit with R = 10Ω and L = 0.5H is excited by the voltage, $e(t) = \delta(t) + 2u(t-1) - 3u(t-3) - 3\delta(t-4)$. Find the current response using time domain analysis	4
3B.	In the circuit of Fig. 3B, switch is changed from A to B at $t = 0$, after attaining steady state at A. Find an expression for the current through inductor for $t > 0$ using time domain analysis.	6
4A. 4B.	In the network of Fig. 4A, switch is changed from A to B at $t = 0$. Find the current response using Laplace Transform method. Draw the pole-zero diagram for the function given below. Using pole-zero diagram, find the residues at all poles. Hence find $f(t)$.	5
	$F(s) = \frac{8(s+2)(s^2+9)}{(s^2+4s+3)(s^2+2s+5)}$	5
5A. 5B.	Find the Laplace Transform of the periodic waveform shown in Fig. 5A. Find the h parameters of the network shown in Fig. 5B.	4 4
эC.	A two port network is defined by the parameters: $Y_{21} = 6$, $Y_{22} = 8$, $h_{11} = 5$, $h_{12} = 2$. Find the T parameters.	2

