# C.U.SHAH UNIVERSITY Winter Examination-2019

## Subject Name: Circuit Theory

Subject Code: 4TE03CIT1			Branch: B.Tech (Electrical)	
Semeste	r: 3	Date : 20/11/2019	Time : 02:30 To 05:30	Marks : 70
Instructio (1) (2) (3) (4)	ons: Use of Progra Instructions v Draw neat di Assume suita	ammable calculator & any vritten on main answer bo agrams and figures (if nec ble data if needed.	other electronic instrument is pr ok are strictly to be obeyed. essary) at right places.	ohibited.
Q-1	Attempt tl	ne following questions:		(14)
a)	In a short c (a) Zero (b) Infinity (c) One (d) None o	ircuit value of voltage is _		(1)
b)	<ul> <li>(d) Noile 0</li> <li>A practical</li> <li>(a) Series</li> <li>(b) Parallel</li> <li>(c) Series 0</li> <li>(d) None 0</li> </ul>	current source with its int or Parallel f above	ernal resistance connected in	. (1)
c)	(a) Itolie o In an open (a) 0 (b) 1 (c)3 (d) 2.	circuit value of current is		(1)
d)	<ul> <li>Nodal equa</li> <li>(a) Theven</li> <li>(b) Superposed</li> <li>(c) KCL</li> <li>(d) Maxim</li> </ul>	itions are written by apply in's Theorem osition Theorem um Power Transfer Theorem	em.	(1)
e)	Which one (a) C (b) R (c) L (d) Batterv	of the below is not a pass	ive element?	(1)
<b>f</b> )	In parallel (a) 0 (b) 1	circuit voltage is		(1)



		(c) Same	
	``	(d) Different.	(1)
	g)	Kirchhoff's current law is applicable to only	(1)
		(a) Electronic circuits	
		(b) Mechanical circuits	
		(c) Junction in a network	
		(d)Closed loops in a network.	
	h)	Define: Branch.	(1)
	i)	Write the difference between circuit and network.	(1)
	j)	What do meant by the Node?	(1)
	k)	Differentiate between mesh and loop.	(1)
	l)	Define active element in circuit.	(1)
	m)	Draw symbol of ideal current source.	(1)
	n)	Write three name of passive element in circuit.	(1)
Attempt	any f	our questions from Q-2 to Q-8	
Q-2	•	Attempt all questions	(14)
- 8	ı)	State and explain Kirchhoff current law applied to electric circuit.	(7)
ł	)	Write short note on the venin's theorem.	(7)

Q-3	Attempt all questions	
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- State and explain Norton's Theorem. a)
- Determine the current I1, I2, and I3 in the network of figure1. With using mesh b) (7) analysis.

(14)

(7)



Figure 1.

Q-4		Attempt all questions	(14)
	a)	Write statement of superposition theorem and explain theorem with electric circuit.	(7)
	b)	Draw and write equation if current source and voltage source is connected in series and parallel condition with source transformation techniques.	(7)
o =			

Q-5	Attempt all questions		(14)
	a)	State and explain Maximum power transfer Theorem.	(7)
	<b>b</b> )	Write short note on reciprocity theorem.	(7)

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#### Q-6 Attempt all questions

- Draw and explain Kirchhoff's voltage law. a)
- Using nodal analysis to find the voltage across the 5 ohm resistor in the network of b) (7) figure 2.



#### Q-7 Attempt all questions

Q-8

	Attempt all questions	(14)
a)	Explain the term Initial conditions. Write the initial condition for R, L, and C also write the procedure for evaluating initial conditions.	(7)
b)	Define Laplace and write transform properties of laplace transforms.	(7)
	Attempt all questions	(14)
a)	Write and explain relationship between Z parameters and Y parameters.	(7)
b)	Explain important features of poles and zeroes of N(s).	(7)

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### (14)

(7)