Enrolment Number: _____

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.TECH MIDSEM EXAMINATION
3rd SEMESTER
ACY-2022-23 (ODD SEM)
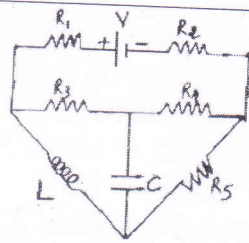
Subject Name (Code): Network Theory (203107205)

Date: 05-08-2022   Time: 2:30PM TO 4:00PM

Branch:EC,RA,BIO
Total Marks: 40

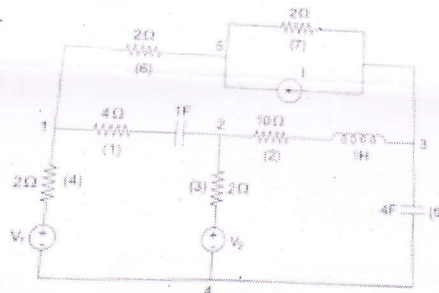| Sr.No.		Marks
Q.1	(A) One line Questions	05
1.	What is circuit?	
2.	Define Node.	
3.	If there are 5 branches and 4 nodes in graph, then the numbers of mesh equations that can be formed are?	
4.	If no two branches of the graph cross each other, then the graph is called?	
5.	In superposition theorem when we consider one voltage source, all the other voltage sources are _____	
	(B) Compulsory Question	05
1.	What is the dual of voltage source?	
2.	Incidence matrix gives relationship between _____ and _____	
3.	Tieset matrix gives relationship between _____ and _____	
4.	Current across capacitor is _____	
5.	Voltage across inductor is _____	
Q.2	Attempt any four(Short Questions)	12
	(1)How many types of controlled sources are possible? Draw their symbols.	
	(2) Prepare a list of dual quantities encountered in electrical circuits. Give a procedure to draw the dual of a network.	
	(3)Define the following terms: 1. Branch 2. Graph 3. Loop 4. Twigs	
	(4) State the steps to solve the Thevenin's Theorem.	
	(5) Determine the inductance between the terminals for a three coil shown in Figure.	
Q.3	Attempt any two	08
	(1) Draw the dual of the network shown in figure.	

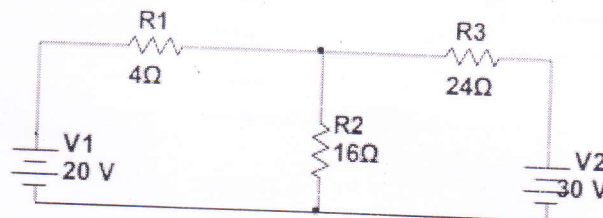|	(2) What is a rules of the dot convention for mutually coupled coil? With diagram.	
	(3) How are ideal current and voltage sources defined? In what respect are practical current and voltage sources different from ideal current and voltage sources."	
Q.4	(A) For the circuit shown in figure draw the oriented graph and obtain the (1) Incidence matrix (2) f-cutset matrix	05

	(B) Calculate current passing through 4Ω resistance in the circuit shown in figure., using Thevenin's theorem.	05

	OR	
	(B) Find current in 20 Ω resistance in the circuit shown in figure. Using superposition theorem.	05