JSS MAHAVIDYAPEETHA
JSS ACADEMY OF TECHNICAL EDUCATION, NOIDA
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CIA-1 (AY 2024-25: Odd Semester)

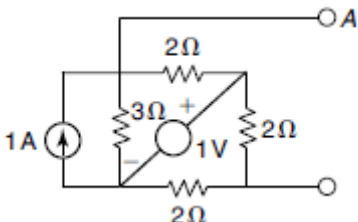|					
Course	:	B. Tech	**Date**	:	Oct 2024
Semester	:	III	**Subject Code**	:	BEC-303
Subject	:	Network Analysis and Synthesis	**Max. Marks**	:	20
Time	:	1 hrs=60 min			

COURSE OUTCOMES	
C203.1	**Understand basics of electrical circuits with nodal and mesh analysis.**
C203.2	**Apply electrical network theorems.**
C203.3	Apply Laplace transform for analysis steady state and transient behaviour of network circuit
C203.4	Determine different network functions of Two Port network
C203.5	Analyse the frequency response of various filters.

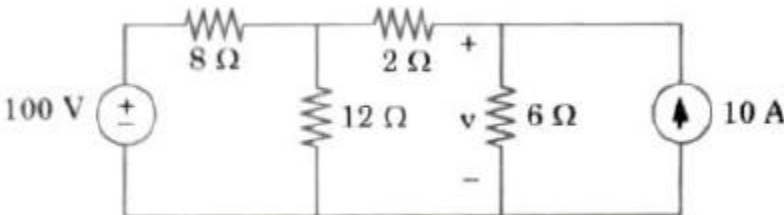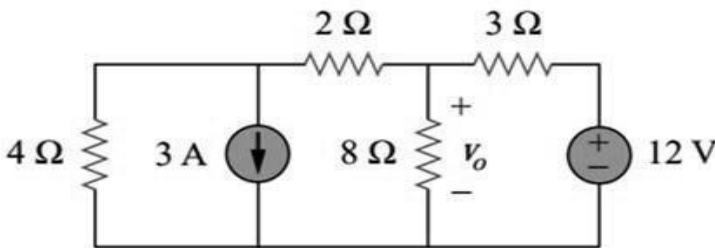| SECTION-A					
Attempt all the questions of this section					(1 X5=5)
Q. No.		Question	Marks	CO	BL/KC*
1.	a	How can an ideal voltage sources be converted into ideal current sources and vice-versa?	1	CO1	L2
	b	Define the concept of Super-Mesh.	1	CO1	L1
	c	List different types of dependent sources with its symbolic diagram.	1	CO1	L1
	d	Define Reciprocity theorem.	1	CO2	L1
	e	Find Thevenin impedance across the terminals AB of the given network	1	CO2	L2

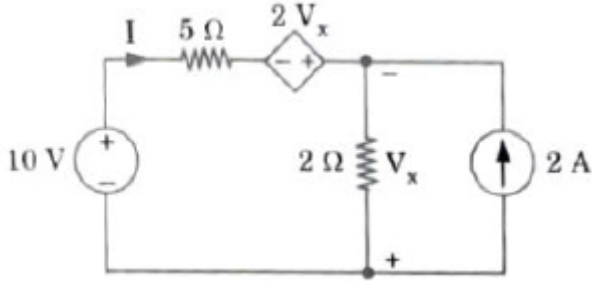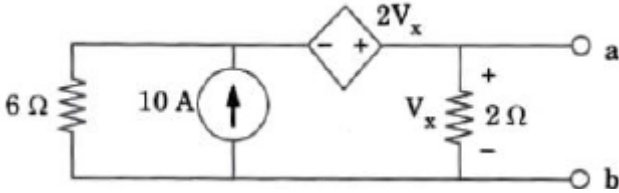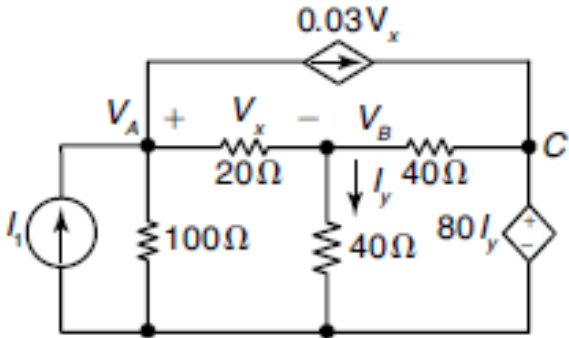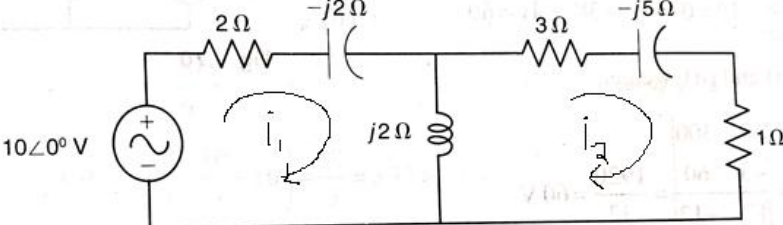| Section-B				
Attempt all the questions of this Section		(3X3=9)		
2.	**For the circuit shown in Fig., determine the voltage "v" using nodal analysis.** OR Use source transformation to solve v_o in the following circuit:	3	CO1	L2
3.	Find the Thevenien's equivalent circuit across the terminals a-b:	3	CO2	L3
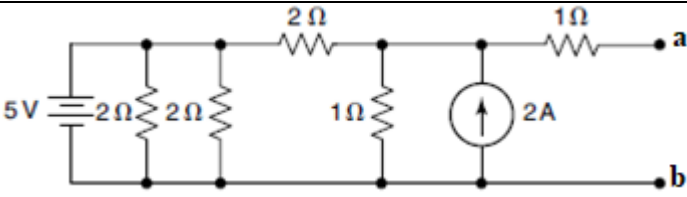
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OR

Show that the Thevenin's and Norton's Theorems are dual to each other with require circuits and equations.

4.	Calculate the current I shown in Fig. by using superposition theorem. OR Find the Norton equivalent circuit of the circuit in Fig. at terminals a-b	3	CO2	L3

Section-C

Attempt all the questions of this Section (6X1=6)

5.	Use nodal analysis to find the voltages V_A, V_B and Vx in the circuit of Fig, in which $I_1 = 0.4$ A. OR Find the loop current i_1 and i_2 in the figure given below.	6	CO1	L3

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