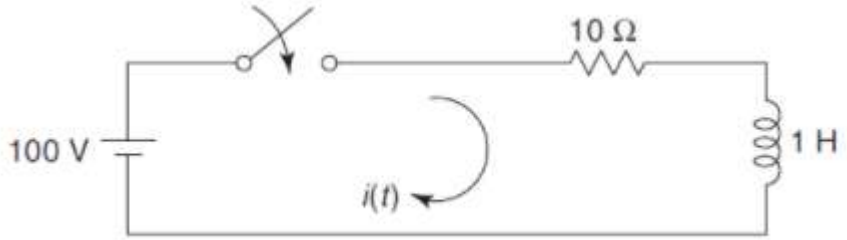
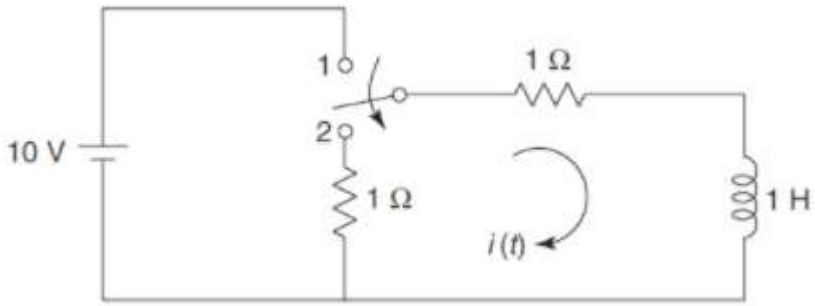
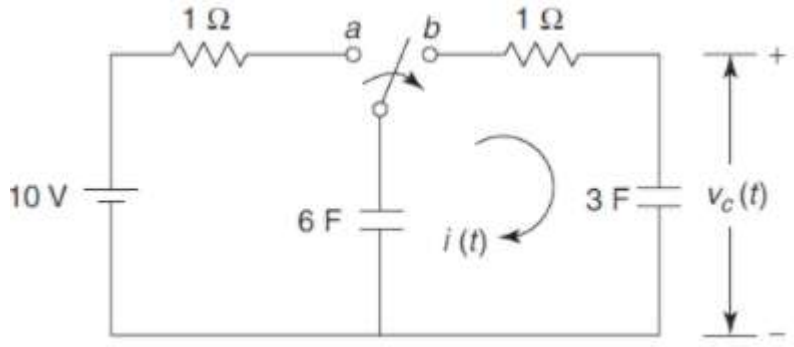
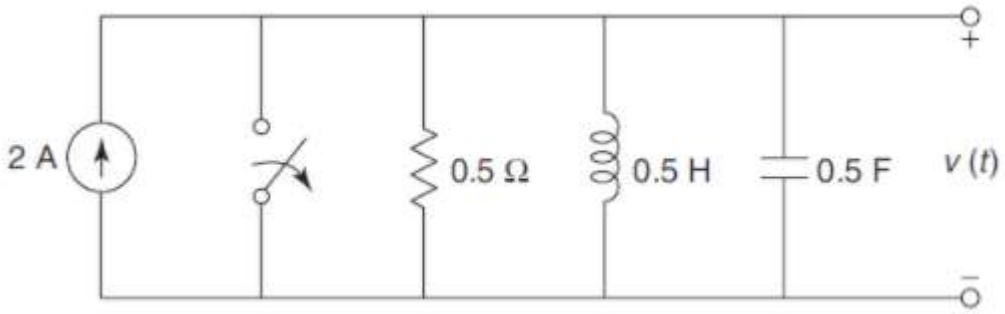
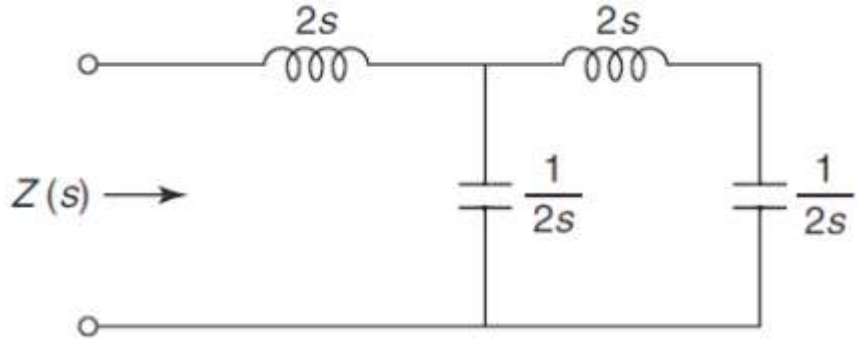
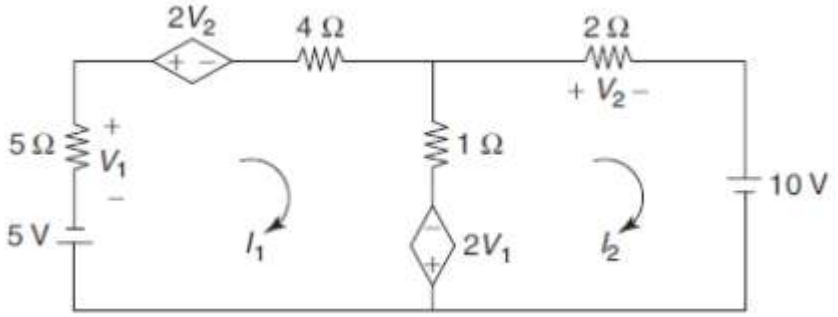
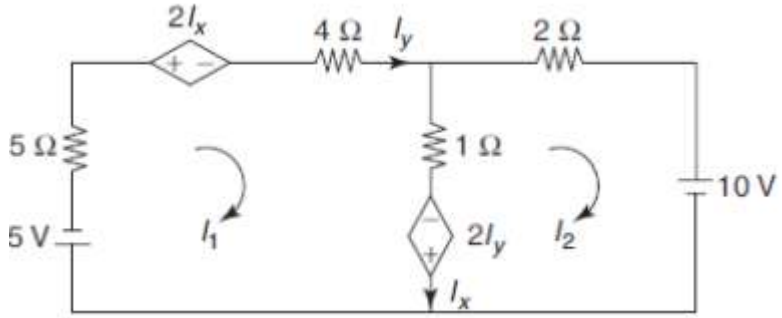
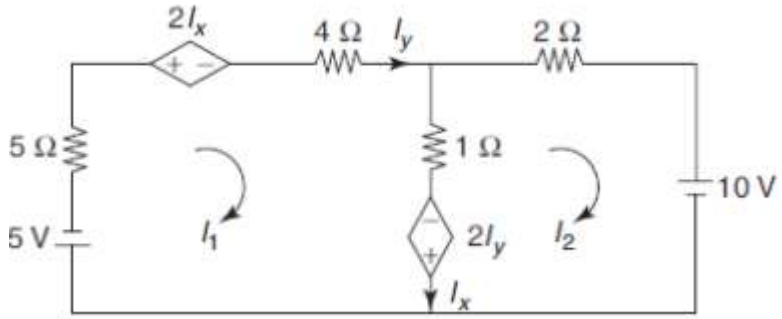
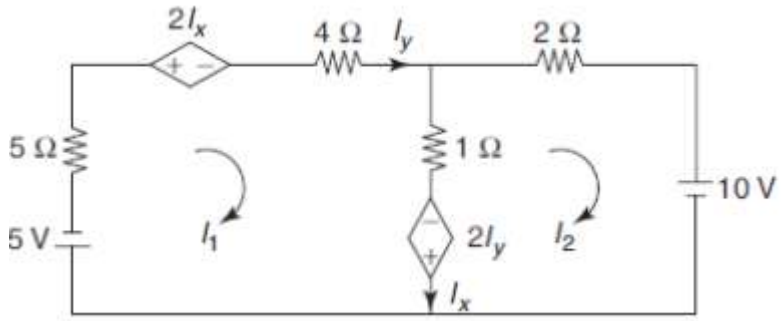
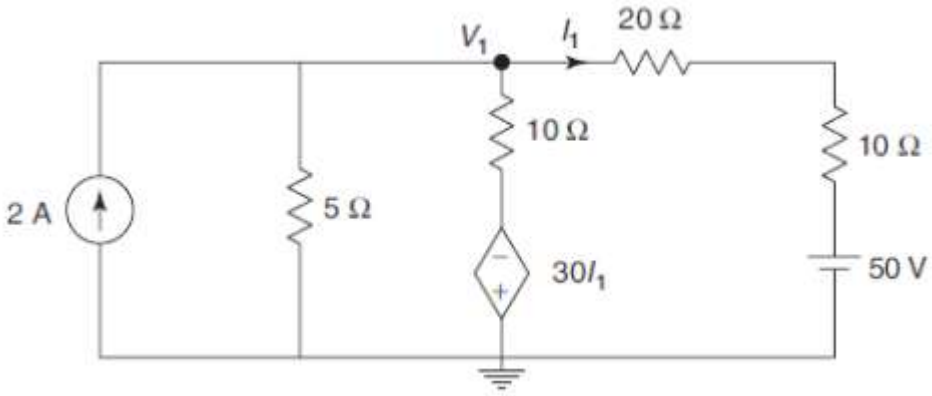
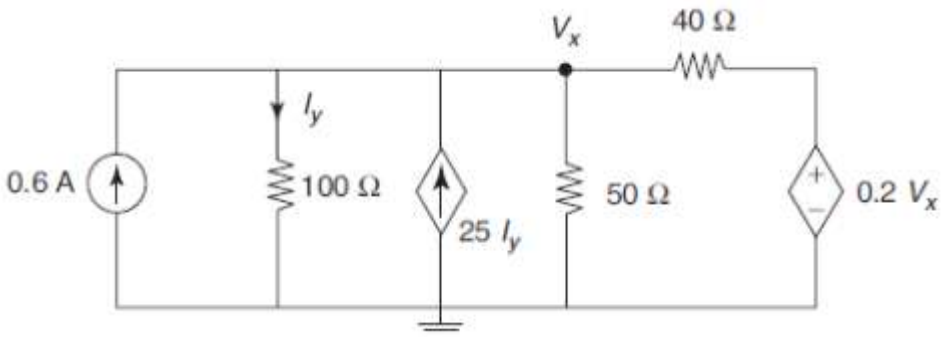
University of Mumbai
Examination 2020

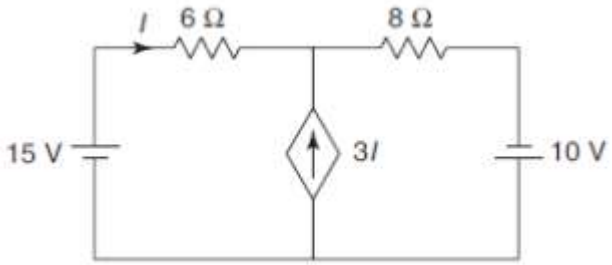
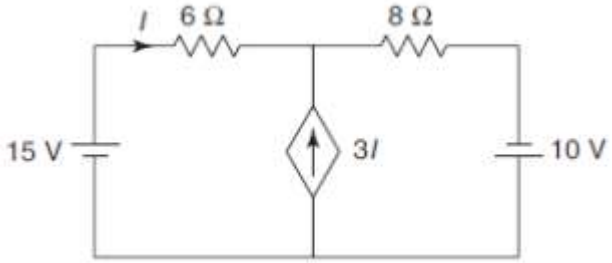
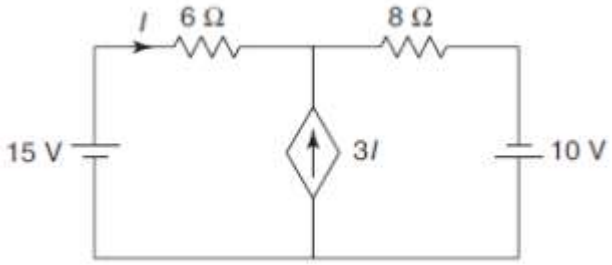
Program: Electronics & Telecommunication Engineering
Curriculum Scheme: Rev2016
Examination: Third Year Semester III
Course Code: _ECC304____ and Course Name: Circuit Theory and Networks
Time: 1 hour Max. Marks: 50
Note to the students:- All the Questions are compulsory and carry equal marks .

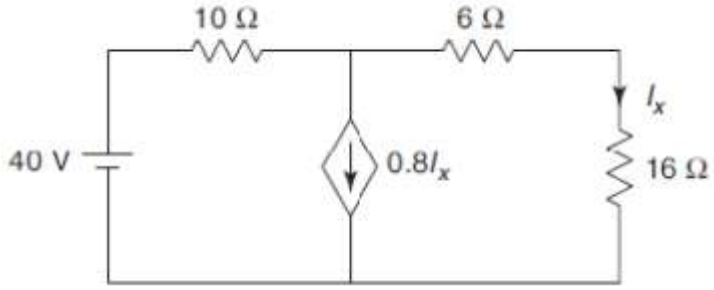
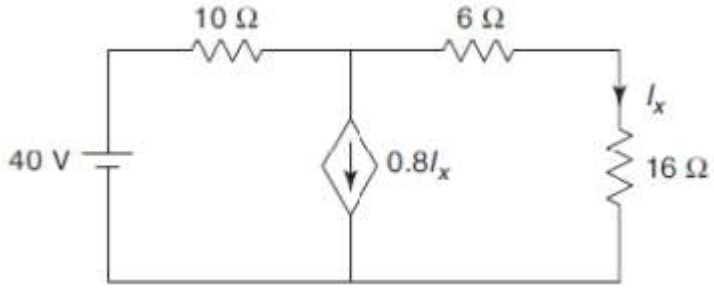
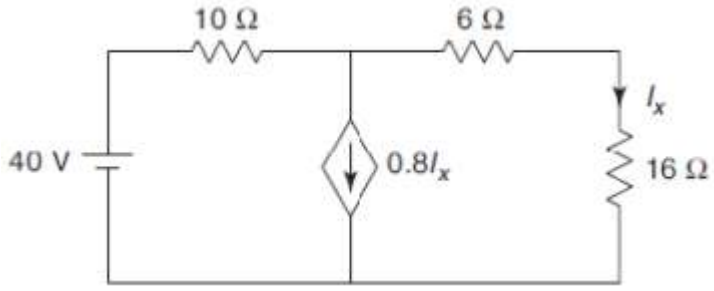
Q1.	The network having admittance function Y(s)=(4s^2+6s)/(s+1)
Option A:	RC function
Option B:	LC function
Option C:	RLC function
Option D:	None of the above
Q2.	In the given network, the switch is closed at t = 0. With zero current in the inductor, find i at $t=0^+$ 
Option A:	0 A
Option B:	**1 A**
Option C:	**2 A**
Option D:	**3 A**
Q3.	In the network, the switch is moved from position 1 to position 2 at t=0, steady state condition having been established in the position 1. Determine i(t) for t>0. 
Option A:	10e^(-2t) A
Option B:	10e^(2t) A
Option C:	20e^(-2t) A
Option D:	20e^(2t) A
Q4.	In the network, the switch is moved from a to b at t=0. Determine i(t)

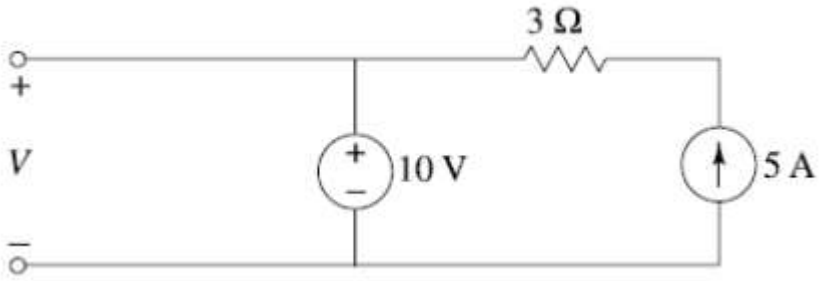
	
Option A:	10e^(-0.5t) A
Option B:	10e^(-0.5) A
Option C:	10e^(0.5t) A
Option D:	10e^(0.5) A
Q5.	The switch is opened at time t=0. Determine v(t) for t>0. 
Option A:	4t*e^(-2t) A
Option B:	4t*e^(2t) A
Option C:	2t*e^(-2t) A
Option D:	4t*e^(-2t) V
Q6.	Determine the driving point impedance of the network shown in figure 
Option A:	$8s^3+4s$
Option B:	$16s^4+12s^2+1$
Option C:	$\frac{16s^4+12s^2+1}{8s^3+4s}$

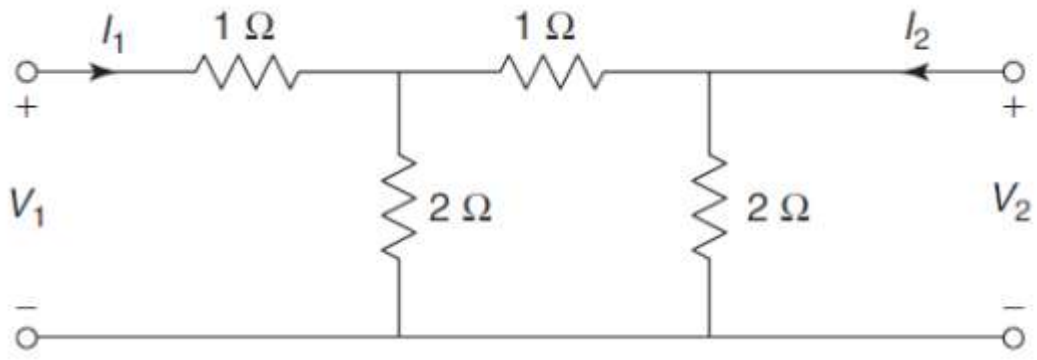
Option D:	None of the above
Q7.	What is the value of V_1 in the network given here? 
Option A:	$5I_1$
Option B:	$-5I_1$
Option C:	$2I_2$
Option D:	$-2I_2$
Q8.	Find the current I1 in the network shown 
Option A:	1.364 A
Option B:	2.878 A
Option C:	-1.364 A
Option D:	-2.878 A
Q9.	Find the current I2 in the network shown 
Option A:	1.364 A
Option B:	2.878 A
Option C:	-1.364 A
Option D:	-2.878 A

Q10.	Find the current Ix in the network shown 
Option A:	-1.514 A
Option B:	2.878 A
Option C:	-2.878 A
Option D:	1.514 A
Q11.	Find the voltage across 5 ohms resistor in the network shown 
Option A:	20 V
Option B:	-20 V
Option C:	40 V
Option D:	-40 V
Q12.	Find the voltage Vx in the network given 
Option A:	-3 A
Option B:	-3 V
Option C:	-3 ohms
Option D:	-3 S

Q13.	When using Superposition theorem in the network given here, what will be the current through 6 ohms when only 15 V source is acting? (assuming current is in clockwise direction) 
Option A:	0.3 A
Option B:	0.34 A
Option C:	0.39 A
Option D:	None of the above
Q14.	When using Superposition theorem in the network given here, what will be the current through 6 ohms when only 10 V source is acting? (assuming current is in clockwise direction) 
Option A:	0.2 A
Option B:	0.26 A
Option C:	0.29 A
Option D:	None of the above
Q15.	When using Superposition theorem in the network given here, what will be the current through 6 ohms? (assuming current is in clockwise direction) 
Option A:	1 A
Option B:	0.74 A
Option C:	0.65 A
Option D:	None of the above

Q16.	If the load resistor is 16 ohms, what is the Thevenin's equivalent voltage? 
Option A:	10 V
Option B:	20 V
Option C:	30 V
Option D:	None of these
Q17.	If the load resistor is 16 ohms, what is the Thevenin's equivalent resistance? 
Option A:	6 ohms
Option B:	12 ohms
Option C:	18 ohms
Option D:	24 ohms
Q18.	Determine the current in the 16 ohms resistor for the network given? 
Option A:	0.2 A
Option B:	1 A
Option C:	2 A
Option D:	-2 A
Q19.	When the voltages and currents are to be found out from a given network, this is called as
Option A:	Network Synthesis
Option B:	Network Analysis

Option C:	Both of the above
Option D:	None of the above
Q20.	In maximum power transfer theorem,
Option A:	RTH = RL
Option B:	VTH = VL
Option C:	ITH = IL
Option D:	None of the above
Q21.	The voltage V in the figure is equal to 
Option A:	10 V
Option B:	15 V
Option C:	5 V
Option D:	None of these
Q22.	Laplace transform changes the ____ domain function to the _____ domain function.
Option A:	time, time
Option B:	time, frequency
Option C:	frequency, time
Option D:	frequency, frequency
Q23.	The resistance element _____ while going from the time domain to frequency domain.
Option A:	does not change
Option B:	increases
Option C:	decreases
Option D:	increases exponentially
Q24.	The current in the R-L circuit at a time t = 0+ is?
Option A:	V/R
Option B:	R/V
Option C:	V
Option D:	R
Q25.	Find Z_{11} for the following network

	
Option A:	11/5
Option B:	4/5
Option C:	-4/5
Option D:	6/5