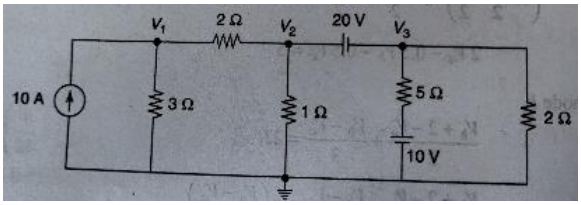
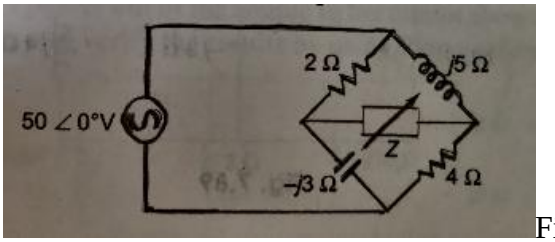
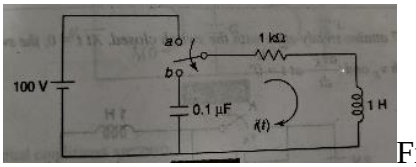
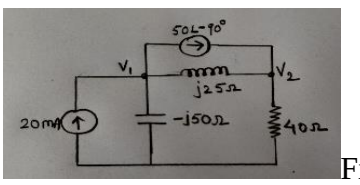
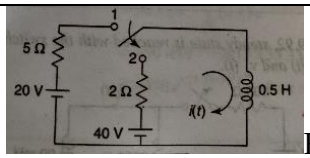
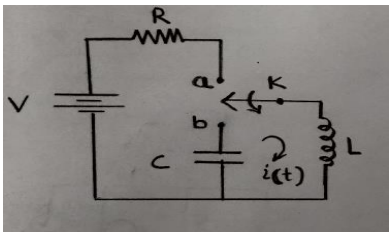
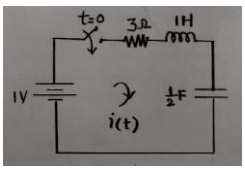
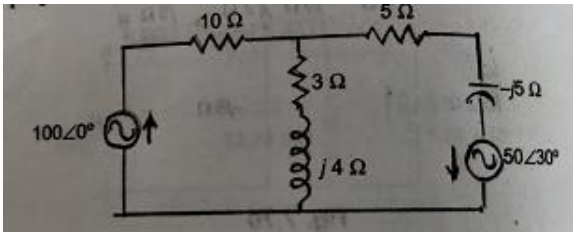
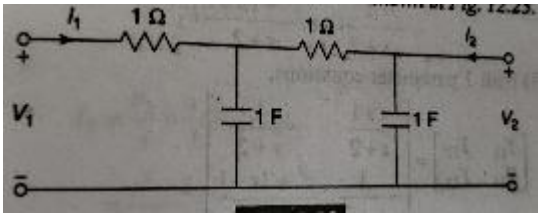
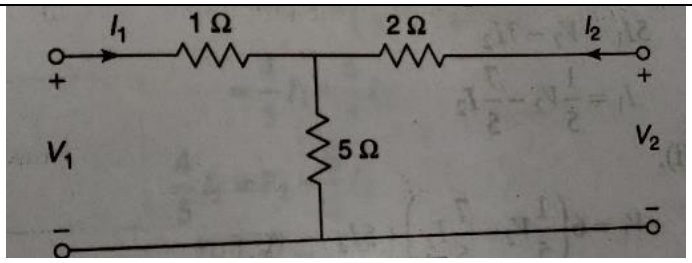
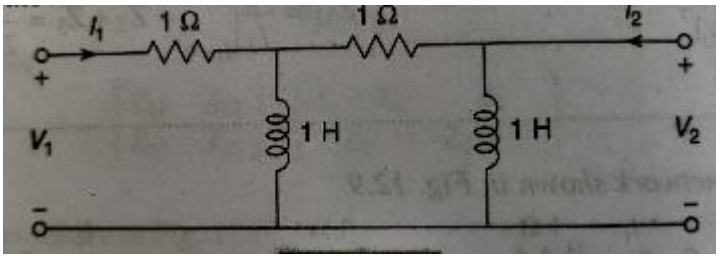
	DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE **Regular End Semester Examination – Summer 2022** **Course: B. Tech. Branch :Electronics Semester :3** **Subject Code & Name: BTEXC304 Network Theory** **Max Marks: 60 Date: Duration: 3 Hr.**		
	Instructions to the Students: *1. All the questions are compulsory.* *2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.* *3. Use of non-programmable scientific calculators is allowed.* *4. Assume suitable data wherever necessary and mention it clearly.*		
		(Level/CO)	Marks
Q. 1	**Solve Any Two of the following.**		
A)	**State and prove Thevenins theorem with neat diagram**	CO1	**6**
B)	**Determine the current in 5Ω resistor for the network shown in figure 1**  Figure 1	CO1	**6**
C)	**Find the value of Z that will receive the maximum power .Also determine this power(Figure 2)**  Figure 2	**CO1**	**6**
Q.2	**Solve Any Two of the following.**		
A)	**For the network shown in figure 3, K is changed from positon a to b at t=0, Solve for i, di/dt, d^2i/dt^2.**  Figure 3	**CO2**	**6**
B)	**Find voltagesV_1 andV_2 using Nodal Analysis for the network in figure 4.**  Figure 4	**CO1**	**6**
C)	**In the network of figure 5 the switch is moved from 1 to 2 at t=0. Determine i(t)**	**CO2**	**6**

	 Figure 5		
Q. 3	**Solve Any One of the following.**		
A)	**In the network shown in figure 6 , the switch K is moved from position a to b at t=0. A steady state current being previously established , derive the expression for the current i(t) using laplace transform.**  Figure 6	**CO3**	**6**
B)	**For the circuit shown in figure 7 ,solve for i(t) by using Laplace Transform with the switch k closed at t=0. Assume zero initial conditions**  Figure 7	**CO3**	**6**
C)	**For the circuit shown in figure 8 find the current in 3Ω resistor using superposition theorem**  Figure 8	**CO1**	**6**
Q.4	**Solve Any Two of the following.**		
A)	**Determine the short circuit admittance parameters for the network shown in figure 9**  Figure 9	**CO4**	**6**
B)	**Determine the transmission parameters for thenetwork shown in figure10**	**CO4**	**6**

	 Figure 10		
C)	**Determine the Z parameters for the network shown in figure 11**  Figure 11	**CO4**	**6**
Q. 5	**Solve Any One of the following.**		
A)	**Test the following polynomial for Hurwitz property** **1.$S^4+S^3+3S^2+2S+12$** **2.S^5+3S^3+2S**	**CO5**	**6**
B)	**Realize the Foster I Form of the RC impedance function given below** **Z(S)=[(S+1)(S+3)] / [S(S+2)]**	**CO5**	**6**
C)	**Find the Cauer I Form of the RL impedance function given below** **Z(S)=[2(S+1)(S+3)] / [(S+2)(S+6)]**	**CO5**	**6**
	***** End *****		

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