



B.Tech III Semester Supplementary Examinations, February 2024

**NETWORK ANALYSIS
(ECE)**

Maximum Marks: 70

Date: 28.02.2024 Duration: 3 hours

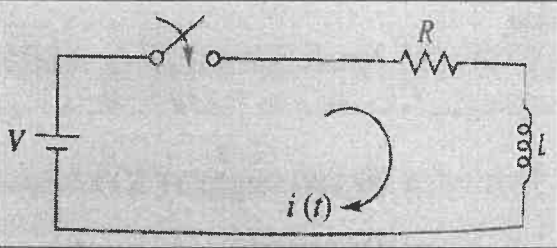
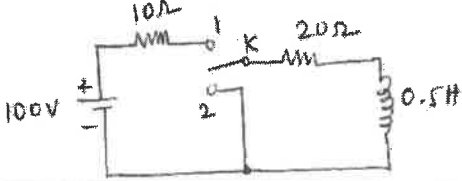
- Note:**
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X2M=20 Marks)		CO	BTL
1	Define self induced emf.	1	
2	Define state variable.	1	
3	Write about Initial conditions?	2	
4	Define time constant .	2	
5	Define average value.	3	
6	Define rms value.	3	
7	Write the symmetry condition for ABCD and Y parameters.	4	
8	Define driving point admittance?	4	
9	Define Order of a Circuit?	5	
10	Define Port.	5	

Part-B

Answer All the following questions. (5X10M=50Marks)		CO	BTL
11	Define coefficient of coupling and derive the formula.	10M	1
OR			
12	Define tieset matrix, cutset matrix and find the tieset matrix and cutest matrix for the circuit shown.	10M	1
13	Derive the expression for voltage $v(t)$ in source free RC circuit.	10M	2
OR			
14	Derive the expression for current $i(t)$ in source free RL circuit.	10M	2
15	Find the expression for the current (i), voltage across resistor (V_R) and voltage across inductor (V_L) using Laplace transform.	10M	3

				
	OR			
16	Explain about Free response and Forced response? for the circuit shown in fig. Find the current equation when the switch is opened at $t=0$. 	10M	3	
17	Derive the condition for Reciprocity and symmetry in a two port ABCD - parameter representation.	10M	4	
	OR			
18	The Z-parameters of a circuit are given by $Z_{11} = 4$; $Z_{12} = 4$; $Z_{21} = 3$; $Z_{22} = 3$ Obtain the transmission parameters.	10M	4	
19	Explain the classifications of filters in detail.	10M	5	
	OR			
20	Explain T-network and π network.	10M	5	