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KAMALA INSTITUTE OF TECHNOLOGY & SCIENCE, SINGAPUR

25EE28PC205

I B. Tech II Semester Regular Examinations, June - 2026
ELECTRICAL CIRCUITS-II
(EEE)

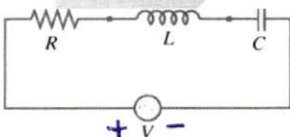
Time: 3 Hours

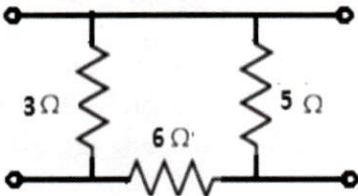
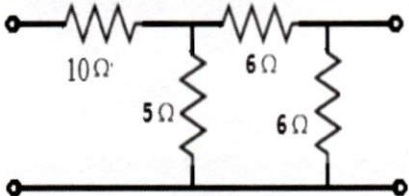
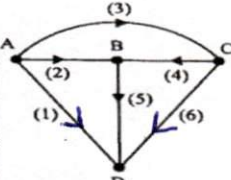
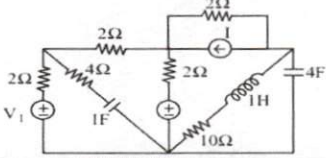
Max. Marks: 60

Note: Question paper consists of Part-A & Part-B.

i) **Part-A** for 10M, ii) **Part-B** for 50marks

- Part A** is compulsory, consisting of 5 sub questions from all units carrying equal marks.
- Part-B** consists of **10 questions** (numbered from 2 to 11) carrying **10 marks** each. From each unit there are 2 questions and the students should answer one of them. Hence the student should answer **5 questions** from **Part-B**.

PART-A (10Marks)			
Q. No	Questions	Marks	BTL
1.a)	Write a short note on the procedure employed to evaluate initial conditions.	2M	2
1.b)	Voltage across a capacitor cannot change instantaneously, Justify.	2M	2
1.c)	What is cut set matrix?	2M	1
1.d)	Define active and passive ports.	2M	1
1.e)	List out the disadvantages of constant – k filters.	2M	1
PART-B (50Marks)			
Q.No	Questions	Marks	BTL
2. a)	Find the transient current equation and also voltage across the resistance and inductance for having a resistance 10Ω and inductance 0.1mH connected in series	5M	1
b)	Derive the transient response of series RL circuit with sinusoidal input.	5M	3
OR			
3. a)	Derive the transient response of series RC circuit with DC input.	5M	3
b)	Derive the transient response of series RC circuit with sinusoidal input.	5M	3
4. a)	Derive expression for current by using Laplace transforms of the following circuit 	5M	3
b)	Obtain the current in the RL parallel circuit by using Laplace transforms	5M	3
OR			
5. a)	Derive expression for current of RC series circuit by using Laplace transforms	5M	3
b)	Derive the expression for the ramp response of series RL circuit when system undergoes transient condition	5M	3

6. a)	Obtain the relation between Y and Z parameters.	5M	3
b)	For the two port network shown in figure, find admittance parameters.	5M	5
			
OR			
7. a)	Discuss in detail about Z-parameters.	5M	4
b)	For the circuit below, determine impedance parameters	5M	5
			
8. a)	Define Incidence Matrix for the graph shown in Figure. Find the complete Incidence Matrix.	5M	5
			
b)	Define and explain the following with an example: i) Graph and Sub graph ii) Oriented Graph iii) Tree of a Graph iv) Twigs and Links	5M	5
OR			
9. a)	For the network shown below, draw the oriented graph.	5M	5
			
b)	Explain the following terms with reference to network topology. i) Branch ii) Tree iii) cut-set iv) tie-set.	5M	2
10.a)	Explain the classification of filters.	5M	2
b)	Design the low pass filter for both T and π sections having cut-off frequency of 2KHz to operate with a terminated load resistance of 500Ω	5M	6
OR			
11.a)	Explain analysis of Band pass filter.	5M	2
b)	Explain low pass filters. Discuss the design considerations of K type low pass filters.	5M	2