

Course Code: A6EE62

MLR INSTITUTE OF TECHNOLOGY

(An Autonomous Institution)

I B.Tech I Semester Supplementary Examinations, September-2023

BASIC ELECTRICAL ENGINEERING

(ECE)

Time: 3 Hours.

Max. Marks: 60

Note: 1. This question paper contains two parts A and B.

2. Part- A is Compulsory which carries 10 marks. Answer all Questions in part A.

3. Part – B consists 5 units. Answer any one question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

10 x 1M=10Marks

1.	a)	Write the Voltage and Current expressions for Inductor.	1M	CO1	BL1
	b)	Define KCL?	1M	CO1	BL2
	c)	Write the expression of power when maximum power transferred to the load.	1M	CO2	BL1
	d)	Define super position theorem.	1M	CO2	BL2
	e)	Write the symmetry and reciprocity conditions for transmission parameters	1M	CO3	BL2
	f)	Define the hybrid parameters.	1M	CO3	BL1
	g)	Explain the time constant of R-L circuits.	1M	CO4	BL2
	h)	Discuss briefly about initial conditions	1M	CO4	BL2
	i)	Distinguish the differences between lap and Wave windings	1M	CO5	BL2
	j)	Distinguish between armature winding and field winding	1M	CO5	BL2

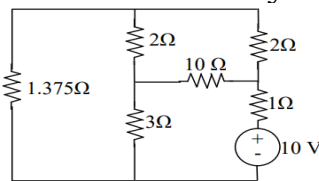
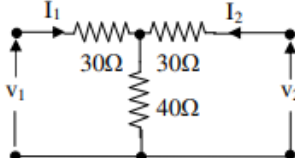
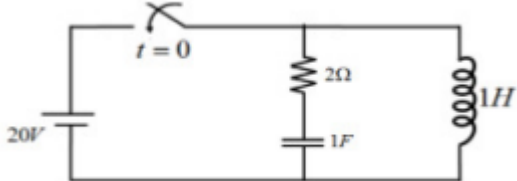
PART- B

5 x 10M=50Marks

2	By using the mesh analysis determine the loop currents in the following circuit.			
		10M	CO1	BL2

OR

3	Circuit shown in below to evaluate the maximum power to the load resistor using the maximum power transfer theorem.			
		10M	CO1	BL2

4		State and prove the superposition theorem with the help of an example.	10M	CO2	BL2
OR					
5	a)	For the network shown in figure, find the current through 1.375 ohms resistor and hence verify reciprocity theorem.	5M	CO2	BL2
					
	b)	Explain the procedure for thevenin's theorem with the suitable example.	5M	CO2	BL2
6	a)	Derive the open circuit impedance parameters of a two port network?	5M	CO3	BL3
	b)	Derive relationship between hybrid and Z-parameters of two port network?	5M	CO3	BL3
OR					
7		For the network shown bellow find Z and Y parameters.	10M	CO3	BL2
					
8		Derive the transient state response of RL circuit.	10M	CO4	BL3
OR					
9	a)	For the circuit shown in Fig, determine the current delivered by the source when the switch is closed at t=0, using Laplace transformation. Assume there is no initial charge on the capacitor and no initial current though the inductor.	10M	CO4	BL3
					
10	a)	Derive the expression for generated e.m.f in a DC generator.	5M	CO5	BL3
	b)	Explain how torque is produced in a three-phase induction motor. Draw the slip-torque characteristics.	5M	CO5	BL2
OR					
11	a)	Explain the construction and principle of DC generator.	5M	CO5	BL2
	b)	A 3-phase, 60 Hz induction motor has 2 poles. If the slip is 2% at a certain load, determine (i) the synchronous speed, (ii) the speed of the rotor.	5M	CO5	BL3