Course Code: 2040201 **Roll No:** **MLRS-R20**

MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section2(f) & 12(B)of the UGC act,1956

II B.Tech II Sem Regular End Examination, July 2022

Basic Electrical Engineering

(CSC, CSD, CSE, CSI, CSM, IT)

Time: 3 Hours. **Max. Marks: 70**

Note: 1. Question paper consists: Part-A and Part-B.
2. In Part – A, answer all questions which carries 20 marks.
3. In Part – B, answer any one question from each unit.
Each question carries 10 marks and may have a, b as sub questions.

PART- A

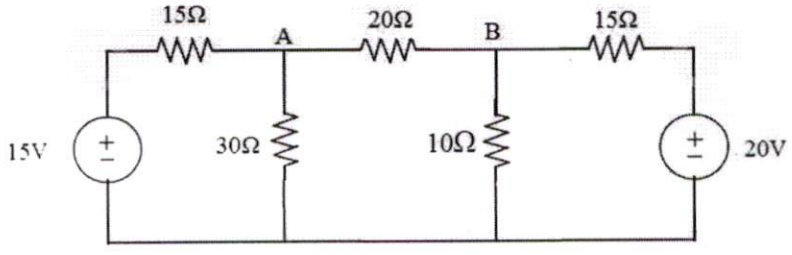
(10*2 Marks = 20 Marks)

1.	a)	State Kirchhoff's voltage law.	2M	CO1	BL1
	b)	Define the following: Junction point and Branch.	2M	CO1	BL1
	c)	Define: RMS and Average value.	2M	CO2	BL1
	d)	Write the relations of Voltages and Currents of a Three phase star connections.	2M	CO2	BL2
	e)	Write the e.m.f equation of a transformer and brief the terms in the equation.	2M	CO3	BL2
	f)	Explain the working principle of auto transformer.	2M	CO3	BL4
	g)	Explain the working principle of three phase Induction motor.	2M	CO4	BL4
	h)	Brief the torque speed characteristics of single-phase induction motor.	2M	CO4	BL2
	i)	Define earthing and brief its importance.	2M	CO5	BL1
	j)	List the types of batteries.	2M	CO5	BL1

PART- B

(10*5 Marks = 50 Marks)

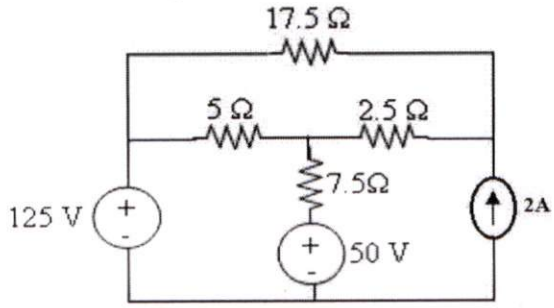
2	a)	Determine the current in branch A-B by using KVL	5M	CO1	BL3



	b)	State and explain Thevenin's theorem.	5M	CO1	BL1

OR

3		Use KCL to find node voltages for the circuit shown below.	10M	CO1	BL3



4	a)	Derive an expression for RMS values of sine wave form.	5M	CO2	BL6
	b)	Define power factor, apparent power, active power and reactive power	5M	CO2	BL1
		OR			
5		Derive an expression for the current and impedance for a series RL and RC circuit excited by a Sinusoidally alternating voltage. Draw the phasor diagrams.	10M	CO2	BL3
6	a)	Draw the constructional diagram of a single –phase transformer and explain all the parts.	5M	CO3	BL2
	b)	Write the short notes on Voltage Regulation & Efficiency.	5M	CO3	BL1
		OR			
7		Draw the constructional diagram of auto transformer and three – phase transformer connections and explain all the parts.	10M	CO3	BL4
8	a)	Explain squirrel cage type Rotor of induction motor briefly.	5M	CO4	BL4
	b)	Derive the emf equation of an alternator	5M	CO4	BL6
		OR			
9		Derive the conditions for maximum torque for 3-phase induction motor under (i) Starting condition (ii) Under running condition.	10M	CO4	BL6
10	a)	Define Wiring system & list the types of wiring systems.	5M	CO5	BL1
	b)	Compare Fuse & Circuit breaker based on various aspects.	5M	CO5	BL2
		OR			
11		With neat diagrams, explain various types of earthing used in electrical systems.	10M	CO5	BL4

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