Course Code: 2020201 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

I B.Tech II Sem Regular End Examination, September 2021

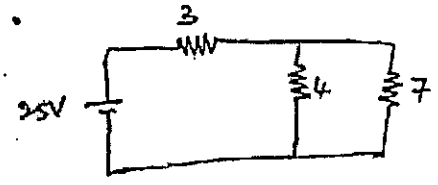
Basic Electrical Engineering

(EEE)

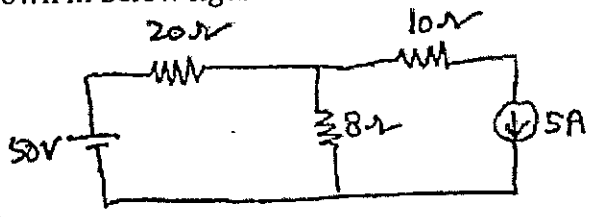
Time: 3 Hours. **Max. Marks: 70**

Note: 1. Answer any FIVE questions.
2. Each question carries 14 marks and may have a, b as sub questions.

1	a)	Define the electrical circuit elements.	7M	CO1	BL1
	b)	For the circuit as shown in following figure, calculate the current in the various branches? (All resistances are in ohms).	7M	CO1	BL3



2	a)	Using superposition theorem, find the current through the 8 Ω resistor, as shown in below figure.	7M	CO1	BL3



	b)	Define and give symbols of the following: i) Dependent sources ii) Independent Sources iii) Practical Sources iv) Ideal Sources	7M	CO1	BL1
3	a)	Derive the expressions for average value, RMS value and form factor for a sinusoidal wave form.	7M	CO2	BL3
	b)	Derive the relation between line and phase quantities of voltage and current for a star system.	7M	CO2	BL3
4	a)	Illustrate following terms: i) Impedance ii) Reactance iii) Phase deference iv) Power factor.	7M	CO2	BL3
	b)	Explain the operation of an auto transformer with a neat diagram.	7M	CO3	BL2
5	a)	From the fundamentals, derive the expression for the EMF equation of a single phase transformer.	7M	CO3	BL3
	b)	A 50 kVA, single phase transformer has 500 turns on the primary and 200 turns on the secondary. The primary is connected to 2000V, 50 Hz Supply. Determine: i) The secondary voltage and ii) The maximum value of flux.	7M	CO3	BL3

6	a)	Explain the principle of operation of 3-Phase induction Motor.	7M	CO4	BL2
	b)	A 10-pole, 3-phase induction motor runs at a speed of 485 rpm at 50 Hz supply. Determine i) synchronous speed and ii) slip.	7M	CO4	BL3
7	a)	Describe the torque speed characteristics of separately excited dc motor.	7M	CO4	BL2
	b)	What is the difference between MCB and MCCB, describe their schematic diagrams?	7M	CO5	BL4
8	a)	What are the different types of wires and cables? Explain.	7M	CO5	BL2
	b)	What is the purpose of earthing? Write the advantages of earthing?	7M	CO5	BL1

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