Course Code: 2030202 **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 I Sem Regular End Examination, February-2022

Basic Electrical and Electronics Engineering
(CIVIL & MECH)

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 KCL.	2M	CO1	BL1
	b)	Define active power.	2M	CO1	BL1
	c)	What is the function of MCCB?	2M	CO2	BL1
	d)	Why do you require earthing?	2M	CO2	BL1
	e)	State various losses of a transformer.	2M	CO3	BL1
	f)	State the various parts of 3-phase Induction Motor.	2M	CO3	BL1
	g)	Define ripple factor of a Half wave rectifier and mention its value.	2M	CO4	BL1
	h)	Draw the circuit diagram of a PN junction diode under forward biased condition.	2M	CO4	BL1
	i)	Draw the circuit diagram of CB configuration of BJT.	2M	CO5	BL1
	j)	Draw the symbol of FET and Identify its terminals.	2M	CO5	BL1

PART- B

(10*5 Marks = 50 Marks)

2	a)	Determine the power factor and the input power for a circuit with v = 50 sin $(t+10^0)$ and I = 2 sin $(t+20^0)$ A	5M	CO1	BL3
	b)	A series circuit consists of 20Ω resistance and inductance of 50mH is connected in series with a single phase AC voltage source of 230V with frequency of 50Hz. Calculate impedance, current, resistive voltage drop, inductive drop	5M	CO1	BL3
		OR			
3		Obtain the relation between line and phase quantities of a 3-phase star connected balanced load connected to a balanced 3-phase supply.	10M	CO1	BL3
4	a)	What is a cable? Explain various types of cables used in electrical installations.	5M	CO2	BL4
	b)	Draw the schematic of ELCB. Explain its working.	5M	CO2	BL2

OR

5		Explain different types of batteries with their characteristics.	10M	CO2	BL4
6	a)	Derive the torque equation of a d.c motor.	5M	CO3	BL6
	b)	Explain the working principle of a d.c generator.	5M	CO3	BL4

OR

7		Obtain the equivalent circuit of a single phase transformer.	10M	CO3	BL3
8	a)	Draw the V-I characteristics of a P-N junction diode. Explain in brief.	5M	CO4	BL4
	b)	In a bridge rectifier circuit the peak value of secondary voltage is $230\sqrt{2}$ V and frequency is 50Hz. Determine the (i) no-load output dc voltage (ii) PIV and (iii) output frequency	5M	CO4	BL3

OR

9		What is filter? Explain the working of different filters used in power supplies.	10M	CO4	BL4
10	a)	Sketch typical CC configuration of an PNP transistor. Label all variables.	5M	CO5	BL2
	b)	Compare CB and CE configuration of a BJT.	5M	CO5	BL2

OR

11		Explain the construction and working of FET with a neat diagram.	10M	CO5	BL4

---oo0oo---