H.T NO.			R	2							MLR20

Course Code: A5EE70

MLR INSTITUTE OF TECHNOLOGY

(An Autonomous Institute)

I B.Tech. I Semester Supplementary Examination September-2023

BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to CSC, CSM & CSE)

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

Note: 1. This question paper contains two parts A and B.
2. Part -A is Compulsory which carries 20 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 2M=20Marks**

1.	a)	State Kirchhoff's voltage law	2M	CO1	BL1
	b)	Write the expression of equivalent resistance for 'n' number of resistors connected in parallel connection.	2M	CO1	BL1
	c)	What is the purpose of yoke in dc machine?	2M	CO2	BL1
	d)	What is meant by self-excited dc generator?	2M	CO2	BL1
	e)	Describe the basic construction of an AC induction motor.	2M	CO3	BL3
	f)	Define slip.	2M	CO3	BL1
	g)	What is a p-n junction?	2M	CO4	BL1
	h)	Define barrier voltage of a p-n junction diode?	2M	CO4	BL1
	i)	Define what is meant by operating point in BJT?	2M	CO5	BL1
	j)	Why CE configuration is most popular in amplifier circuits?	2M	CO5	BL4

PART- B **5 x 10M=50Marks**

2		Determine the current through 5Ω resistor.	10M	CO1	BL3

OR

3		Determine the current drawn by the circuit shown in fig.	10M	CO1	BL3
4		Explain the DC series and DC Shunt Motor with voltage and current equations.	10M	CO2	BL3
		OR			
5	a)	Derive the expression for EMF induced in the generator	5M	CO2	BL3
	b)	Explain briefly about the classification on DC generators with neat diagram?	5M	CO2	BL2
6		Analyze torque slip characteristics of 3-phase induction motor.	10M	CO3	BL4
		OR			
7	a)	Explain construction and working principle of transformer.	5M	CO3	BL2
	b)	Derive the torque equation of 3-phase induction motor.	5M	CO3	BL3
8		Analyze the operation of center tapped full wave rectifier along with input and output waveforms? And Derive efficiency and Ripple Factor?	10M	CO4	BL4
		OR			
9	a)	With neat sketch explain principle and operation of Zener diode?	5M	CO4	BL2
	b)	With simple circuit explains how the Zener diode acts as a voltage regulator?	5M	CO4	BL2
10	a)	Explain the characteristics of CE configuration?	5M	CO5	BL2
	b)	Compare α,β, and γ, configurations of BJT.	5M	CO5	BL4
		OR			
11		Explain the characteristics of CB configuration of BJT.	10M	CO5	BL2

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