Electrical

PRN:		Course Code:	ELE2501

Third Year **B. Tech** End Semester Examination Winter 2023

Power Electronics

Day and Date: Wednesday, 29/11/2023 Max Marks: **100**

Time : 10.30 am to 1.30 pm Duration: **03** hrs

Instructions: All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	Describe the Construction and I-V characteristics of SCR.	08	L2	CO1
	b)	Describe the Construction and working of power diode.	08	L2	CO1
		OR			
	b)	Describe the Construction and working of IGBT.	08	L2	CO1
Q.2		**Attempt the following**			
	a)	Discuss Single phase full wave thyristor rectifier with R-L-E load.	08	L2	CO2
	b)	Explain Three phase full bridge thyristor rectifier with R load.	08	L2	CO2
		OR			
	b)	Explain Effect of source inductance on the performance of three-phase converter.	08	L2	CO2
Q.3		**Attempt any two from the following**			
	a)	Illustrate Voltage control strategies of chopper.	08	L3	CO3
	b)	Demonstrate with waveforms and circuit diagram Type A chopper and Type B chopper.	08	L3	CO3
	c)	Illustrate Four quadrant chopper.	08	L3	CO3
Q.4		**Attempt any two from the following**			
	a)	Interpret Single phase ac voltage controller with R-L load.	08	L2	CO3
	b)	Illustrate Three phase ac voltage controller.	08	L3	CO3
	c)	Sketch three phase Matrix converter and discuss its working.	08	L3	CO3
Q.5		**Attempt any Two of the following**			
	a)	Analyze Three phase VSI with 120-degree mode of conduction.	09	L4	CO4
	b)	Classify the Pulse width modulation techniques.	09	L4	CO4
	c)	Explain Diode clamped Multilevel inverter.	09	L4	CO4
Q.6		**Attempt any Two of the following**			
	a)	Summarize the operation of electronic lamp ballast.	09	L4	CO4
	b)	Evaluate the operation of Battery charger.	09	L4	CO4
	c)	Evaluate the power electronics application in HVDC.	09	L4	CO4

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