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PRN:		Course Code:	ELE2501

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

Power Electronics

Day and Date: Monday 12/6/23 Max Marks: **100**

Time : 10:30 AM – 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 PMOSFET.	08	L2	CO1
	b)	Describe the Firing circuits for thyristor.	08	L2	CO1
		OR			
	b)	Describe the commutation methods for thyristor.	08	L2	CO1
Q.2		**Attempt the following**			
	a)	Discuss the operation of Single-phase full wave thyristor rectifier with R-L load.	08	L2	CO2
	b)	Explain the operation of three phase full bridge thyristor rectifier with R load.	08	L2	CO2
		OR			
	b)	Explain the effect of source inductance on the performance of single-phase converter.	08	L2	CO2
Q.3		**Attempt any two from the following**			
	a)	Illustrate the Voltage control strategies of chopper.	08	L3	CO3
	b)	Demonstrate with waveforms and circuit diagrams Step up chopper step down chopper.	08	L3	CO3
	c)	Illustrate Four quadrant chopper.	08	L3	CO3
Q.4		**Attempt any two from the following**			
	a)	Interpret the operation of Single-phase ac voltage controller with R load.	08	L2	CO3
	b)	Illustrate the Three phase ac voltage controller.	08	L3	CO3
	c)	Sketch the three-phase buck-boost converter and explain its working.	08	L3	CO3
Q.5		**Attempt any Two of the following**			
	a)	Analyze the operation of Three phase VSI with 180-degree mode of conduction.	09	L4	CO4
	b)	Classify and describe Pulse width modulation techniques.	09	L4	CO4
	c)	Explain ASCI current source inverter.	09	L4	CO4
Q.6		**Attempt any Two of the following**			
	a)	Evaluate the power electronics application in HVDC.	09	L4	CO4
	b)	Summarize the operation of SMPS.	09	L4	CO4
	c)	Evaluate the operation of UPS.	09	L4	CO4

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