PRN:		Course Code :	ECE307R1

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

Power Electronics

Day and Date: Wednesday, 06/12/2023 Max Marks: **100**

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

Instructions: All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	Draw the construction and characteristics of IGBT	08	L2	CO1
	b)	Describe in detail TRIAC with its different modes of operations & VI characteristics	08	L1	CO1
		OR			
	b)	Draw the construction and characteristics of MOSFET	08	L1	CO1
Q.2		**Attempt the following**			
	a)	Explain UJT with its characteristics & UJT as a relaxation oscillator, for triggering SCR	08	L3	CO2
	b)	Explain class C & Class D turn off methods of SCR. Using neat circuit diagram	08	L2	CO2
		OR			
	b)	Explain class A & Class B turn off methods of SCR. Using neat circuit diagram	08	L2	CO2
Q.3		**Attempt any two from the following**			
	a)	Explain with neat diagram single phase full controlled full wave rectifier with R-L load and freewheeling diode	08	L4	CO3
	b)	Explain half wave controlled bridge rectifier R load	08	L4	CO3
	c)	Explain phase full wave controlled bridge rectifier R-L load	08	L4	CO3
Q.4		**Attempt any two from the following**			
	a)	With the help of circuit diagram and waveform explain operation Three phase bridge inverter 180 using MOSFET.	08	L3	CO4
	b)	Explain in detail i) Multiple PWM ii) Sine PWM	08	L2	CO4
	c)	With neat diagram explain working single phase cyclo-converter	08	L2	CO4
Q.5		**Attempt any Two of the following**			
	a)	Explain principle of Step-up chopper.	09	L3	CO5
	b)	Explain Jone's chopper in detail	09	L2	CO5
	c)	Explain principle of Morgan's chopper	09	L2	CO5
Q.6		**Attempt any Two of the following**			
	a)	Write short on SMPS	09	L1	CO6
	b)	Explain Dielectric heating	09	L2	CO6
	C)	Discuss principle of operation of induction heating	09	L2	CO6

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