

Enrollment No: _____

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech Mid Semester Exam

Semester: 6(RA)

Subject Code: 203122357

Subject Name: Power Electronics and Drives

Date: 31.01.2024

Time: (1hr: 30min)

Total Marks: 40

Sr. No.		Marks
Q.1	(A) Attempt all Questions (i) State any two applications of Thyristors. (ii) Draw the symbol of LASCR , PUT, SUS, DIAC (iii) Define holding current. (iv) What is a snubber circuit? (v) What is natural commutation?	05
	(B) Fill in the blanks(any 5) (i) Power diode has more handling capacity than signal diode. (ii)is used in dimmer circuit. (iii) GTO can be turned off using terminal signal. (iv) PUT stands for (v) 3-phase full wave-controlled rectifier is also called..... (vi)is a SCR triggering method.	05
Q.2	Attempt any four(Short Questions)	12
	(1) Explain various 3 modes of operation of SCR.	
	(2) Explain the working and modes of operation of TRIAC.	
	(3) Describe the two-transistor analogy of thyristor with equations.	
	(4) Explain working of SUS.	
	(5) Explain the Snubber circuit for SCR.	
Q.3	Attempt any two questions	08
	(1) Explain single phase half controlled rectifier with R load.	
	(2) Explain the construction, working and characteristics of GTO.	
	(3)). Explain all turn on methods of SCR in detail.	

Q.4	(A) Explain the working of single phase full wave bridge converter with RLE load and also derive expression for average DC and RMS voltage at load.	05
	(B) Explain the class A and Class B commutation method for SCR.	05
	OR	
	(B) A single-phase full wave converter has resistive load 20-ohm, L= 2mH, input voltage 230V, 50 Hz with $\alpha = 45$ degree. Determine: (i) Average value of output voltage (ii) RMS value of output voltage (iii) Load current power delivered to load end (iv) power delivered to load end	05