Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. - SEMESTER – IV • EXAMINATION – WINTER 2012

Subje	ect o	code: 142402 Date: 31/12/2	012
•		Name: Fundamentals of Power Electronics	
		.30 pm - 05.00 pm Total Marks:	: 70
Instr			
	2.	Attempt any five questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a)	Draw the block diagram of Power Electronics system. Explain the role of each component in detail.	07
	(b)	•	07
Q.2	(a) (b)	Draw structure, symbol & equivalent circuit of UJT. Also explain typical UJT V-I characteristic.	07 07
	(b)	OR Draw & explain schematic construction, symbol & V-I characteristic of a DIAC.	07
Q.3	(a) (b)	Define TRIAC. Enlist all triggering modes of TRIAC & explain any one in detail.	07 07
		OR	
Q.3	(a) (b)		07 07
Q.4	(a)	Compare various types of power semiconductor devices in tabular form.	07
	(b)	Draw & explain Power circuit and transient response of Fast recovery diode.	07
0.4	(a)	OR Explain dv/dt and di/dt protection of SCR.	07
Q.4	(a) (b)	Compare semi-convertor bridge circuit and full-convertor bridge circuit with all technical aspects.	07 07
Q.5	(a)	Enlist & explain the control strategies for operating the switches employed in d.c. choppers.	07
	(b)	- ·	07
Q.5	(a)		07
	(b)	block diagram. Also explain the application of SMPS. Explain the operation of McMurray Inverter with necessary waveforms.	07
