	Enrollm	ent No:	СПСПАН				
	C.U.SHAH UNIVERSITY						
	Summer Examination-2018						
	Subject Name : Power Electronics -I						
	Subject Code: 4TE05PEL1			Branch: B.Tech (EEE,EE)			
	Semester	r : 5	Date: 21/03/2018	Time: 10:30 To 01:30	Marks: 70		
	Instruction	ons:					
	(1) Use of Programmable calculator & any other electronic instrument is prohibited.						
				ook are strictly to be obeyed.			
			at diagrams and figures (if ne	ecessary) at right places.			
	(4) A	Assume s	suitable data if needed.			-	
Q-1	l	Attemp	ot the following questions:		(1	14)	
	-)	D.,,,,,, 41	a alamantamisti sa af Mas ssam	ous Is for DIT			
	a) b)		ne characteristics of Vce vers ne characteristics of diac.	sus. IC for BJ1.			
	c)		e function of pulse transform	ner			
	d)			Current Control/ Voltage Control)	device		
	e)	The Tra	ansistors are (C	Current Control/ Voltage Control)	device.		
	f)		e function of snubber circuit				
	\mathbf{g})		(Resistor and Capacito	or, Resistor and Inductor, Inductor	and		
		Capacit	tor) are used as snubber circ	euit components.			
	h)	The int	roduction of gate pulse to the	e thyristor circuit (reduc	ces /		
			es) its forward resistance.				
	i)			urn (on/off) the thyristor.			
	j)		is(bidirectional /u	· · · · · · · · · · · · · · · · · · ·			
	k)	-	g angle of SCR is increased, ses/decreases/remains consta	<u> </u>			
	1)	*		ant) tural commutation no additional c	ommutation		
	1)		is required.	iturar commutation no additionar c	ommutation		
			ove statement is TRUE/FAL	SE.			
	m)			verter, Rectifier, Chopper, Cyclod	converter) is		
	,	used.	\	, 11	,		
	n)	Use of	inverter in the system introd	uces (Harmonics, Surges,	Voltage		
		dips)					
Atte	empt any f	four que	stions from Q-2 to Q-8				
Q-2	2	Attem	ot all questions		(1	14)	
(A)		_	-	of power diode. Explain how does	•	(7)	
			dinary small signal diode.				
(B)	1		he symbol and characteristical MOSFET (iii) IGBT	s of the following devices : (i) SCl	R (ii) N ((7)	



Q-3	Attempt all questions	(14)
(A)	Explain the construction of Thyristor and explain its static V-I characteristics.	(7)
(B)	List the various methods for thyristor turn on. Explain any one of them.	(7)
Q-4	Attempt all questions	(14)
(A)	Explain the construction and working of Triac.	(7)
(B)	Briefly explain UJT.	(7)
Q-5	Attempt all questions	(14)
(A)	List various firing scheme for SCR. Explain any one of them.	(7)
(B)	List the types of DC to DC converter. Explain any one of them.	(7)
Q-6	Attempt all questions	(14)
(A)	Draw the circuit diagram of half wave controlled rectifier for resistive load. Draw the waveforms of supply voltage, load current and load voltage.	(7)
(B)	Explain the operation of single pole semi controlled rectifier for resistive load.	(7)
Q-7	Attempt all questions	(14)
(A)	Explain the operation of single phase AC voltage controller using any one method of usual practice.	(7)
(B)	Explain the operation of single phase cycloconverter for resistive load.	(7)
Q-8	Attempt all questions	(14)
(A)	Explain the operation of single phase full bridge inverter for resistive load.	(7)
(B)	Explain the 120 degree operation of three phase full bridge inverter for resistive load.	(7)

