		Reg. No.										
Manipal Institute of Technology, Manipal (A Constituent Institute of Manipal University)												POWER D D D D D D D D D D D D D D D D D D D
VI SEMESTER B.TECH (ELECTRICAL & ELECTRONICS ENGINEERING)												
	MAKE UP EXA	MINATION	S, J	ANU	ARY	201	6					
SUBJECT: POWER ELECTRONICS [ELE 304]												
	Time: 3 Hours 1	3 JANUARY	2016	5		MAX	. MA	RKS	S: 50)		
	Instructions to Candidates:											
	 Answer ANY FIVE FULL questions. 											
	✤ Missing data may be suitably assumed.											
1A.	What are the problems associated with parallel connection of SCRs and explain the remedies.										((05)
1B.	Explain how a SCR can be commutated with the principle of current commutation. Also, sketch waveforms for voltage across SCR, capacitor and load and capacitor current.										h ((05)
2A.	Discuss the static characteristics of an SCR showing the various regions of operation Hence discuss the importance of "Latching Current" and "Holding Current".											(05)
2B.	Briefly explain the single phase full wave controlled rectifier for RL with high value of L/ ratio. Draw the output current and voltage waveform. Derive the rms and average value of output voltage.									R s	(05)	
3A.	Describe the switching characteristics of power BJT with the help of equivalent circuits.								its.	((05)	
3B.	Briefly explain the three phase full wave controlled rectifier at firing angle 60° for R loa with relevant circuit diagram and waveforms clearly showing the triggering sequence Derive the rms and average values of output voltage.									d	(05)	
4A.	With a neat circuit schematic, waveforms of load voltage, load and source curren explain the working of Class C chopper.								rrent	s	、 (05)	
4B.	Single phase full wave controlled rectifier has a source of 120V rms at 60Hz, R=10 L=20mH, and α =60° Determine (a) an expression for load current (b) the average load current (c) Power absorbed by the load								=10Ω e loa	?, d	(05)	
5A.	Explain unipolar switching of single phase full bridge voltage source inverters with the help of suitable waveforms. Also draw and explain its harmonic spectrum.								h th	e	(05)	
5B.	Discuss the switching scheme for 180° mode of operation of three phase square way inverter. Hence plot the phase voltages and any one line voltage waveform.								wav	e	(05)	
6A.	Write technical note on (i) Cyclocon	verter (ii) So	ft sw	itching	g schei	me					((05)
6B.	With the help of neat circuit diagram and relevant waveforms explain the working cascaded multilevel inverter. What are its advantages and disadvantages?							ng o	f ((05)		

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