B.E. Instrumentation Engineering Fifth Semester IN503 - Power Electronics

P. Pages : 2 Time : Three Hour		2 ree Hours $* 1 2 9 2 *$	GUG/W/18/1643 Max. Marks : 80
	Note	 es: 1. Same answer book must be used for each question. 2. All questions carry marks as indicated. 3. Due credit will be given to neatness and adequate dimensions. 4. Assume suitable data wherever necessary. 	
1.	a)	Elaborate the layer diagram of a triac and explain its working.	8
	b)	Discuss the application of SCR in obtaining logic gates and flip flops.	8
		OR	
2.	a)	Draw & discuss the characteristics and symbols of following power dev i) SUS ii) IGBT iii) GTO	vices. 8
	b)	Justify why the latching current (I_L) is greater than holding current (I_b) switching operation of SCR.	in concern with 8
3.	a)	Discuss the performance parameters of single phase Half wave controll load.	ed rectifier with R 8
	b)	What are the advantages of a three phase rectifier over a six phase star the purposes of filters in rectifier circuits?	rectifier? What are 8
		OR	
4.	a)	Elaborate with circuit diagram and waveforms the operation of single p bridge Half controlled rectifier with R load.	hase full wave 8
	b)	Explain the operation of single phase full wave bridge controlled rectifing freewheeling diode.	er with 8
5.	a)	Define line commutation? Describe the operation of class A commutation	on. 8
	b)	Discuss the single phase bridge inverter with waveforms.	8
		OR	
6.	a)	Elaborate the operation of 3 phase bridge inverter in 120° degree mode proper waveforms.	operation with 8
	b)	Elaborate the operation of basic series inverter with all necessary wave limitations of basic series inverter.	forms. Also give 8
7.	a)	Describe two quadrant choppers with neat circuit diagram.	8
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b) What is mean by AC Choppers? Explain it with suitable circuit diagram.

OR

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10.	a)	Discuss the design concept of snubber circuit for SCRs.	8
		OR	
	b)	Describe the different protection schemes for SCRS.	8
9.	a)	Discuss the differences between controlled and uncontrolled rectifier.	8
	b)	Discuss the Morgan's chopper with neat circuit diagram.	8
8.	a)	Elaborate the operation of oscillating chopper.	8

b) Draw the static and dynamic equalizing circuits for three SCRs connected in series & explain its necessary.
