Duration: 3hrs **[Max Marks: 80]**

N.B. : (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

1		Attempt **any FOUR**	**[20]**
	a	Explain di/dt protection of SCR.	**[05]**
	b	Explain the Safe Operating Area (SOA) of power MOSFET.	**[05]**
	c	Draw VI characteristics of SCR and hence explain in brief all conducting states.	**[05]**
	d	Explain fly back converter in short.	**[05]**
	e	Explain Half Wave Controlled Rectifier for Resistive load.	**[05]**
2	a	What is commutation of SCR. List the various method and explain one method in brief	**[10]**
	b	List the advantages and disadvantages of the Buck and Boost converter.	**[10]**
3	a	Explain Full Wave Controlled Rectifier for R-L load.	**[10]**
	b	Explain synchronized UJT relaxation oscillator circuit to trigger SCR.	**[10]**
4	a	Describe Buck DC-DC converter with appropriate waveforms.	**[10]**
	b	What is the effect of source inductance on a full wave-controlled rectifier for R load	**[10]**
5	a	Describe the full bridge inverter for inductive load and draw suitable waveforms.	**[10]**
	b	Explain the single-phase AC controller for inductive load.	**[10]**
6	a	Describe the single-phase Cycloconverter for resistive load.	**[10]**
	b	Explain in detail the multiple pulse wave modulating (PWM) technique for single-phase inverters.	**[10]**

****