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	Compare voltage commutation and Current commutation of SCR.	**[05]**
b	Explain UJT as a relaxation oscillator.	**[05]**
c	Explain the block diagram of SMPS.	**[05]**
d	Draw and explain two terminology of SCR.	**[05]**
e	What is a cycloconverter? Give some of its industrial applications.	**[05]**

2	**a** Describe the different modes of operation of TRIAC with the help of its detail and label static I-V characteristics	**[10]**
	b Explain the triggering method? Explain the DIAC as triggering device with suitable schematic diagram and its characteristics.	**[10]**

3	**a** Explain latch-up phenomenon in IGBT. How it can be overcome?	**[10]**
	b Explain the effect of source inductance and load inductance in the output of full wave controlled rectifier with waveforms.	**[10]**

4	**a** List the advantages and disadvantages of the Buck and Boost converter.	**[10]**
	b What is pulse width modulation? List the various PWM techniques in inverter. How do these differ from each other?	**[10]**

5	**a** Explain continuous mode fly-back converter. Derive the relation for load voltage.	**[10]**
	b Explain Principle of operation of single phase Bridge Inverter.	**[10]**

6	**a** Draw and explain boost converter feeding an inductive load (R-L) with neat diagram and waveforms. Derive the expression for output voltage.	**[10]**
	b Discuss the significance of, various performance parameters for DC-AC converters. Derive the formula for Harmonic Factor, THD and Displacement Factor.	**[10]**

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