

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]
