

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]
