

22527

24225

3 Hours / 70 Marks

Seat No.

--	--	--	--	--	--	--	--

- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Illustrate your answers with neat sketches wherever necessary.
 - (3) Figures to the right indicate full marks.
 - (4) Assume suitable data, if necessary.
 - (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following :

10

- (a) List applications of MOSFET.
- (b) List the types of Chopper.
- (c) List the applications of Inverter.
- (d) Draw labelled circuit diagram of battery charger.
- (e) List the types of cyclo-converter.
- (f) Draw V-I characteristics of SCR.
- (g) List four switching components used in inverters.

2. Attempt any THREE of the following :

12

- (a) Draw & explain working principle of IGBT.
- (b) Draw the circuit of a two quadrant chopper and explain it's working.
- (c) Explain with a neat labelled sketch the working principle of self-commutated inverter.
- (d) With a neat circuit diagram, explain working principle of Morgan Choppers.



- 3. Attempt any THREE of the following : 12**
- (a) With the circuit diagram, explain the working principle of Jones Chopper.
 - (b) Explain the operation of single phase bridge inverter with R-L load.
 - (c) Explain the operation of Class-C Chopper with neat circuit diagram. Also draw waveforms.
 - (d) Explain the working of DC static circuit breaker with a neat diagram.
- 4. Attempt any THREE of the following : 12**
- (a) Explain with a neat circuit diagram the basic principle of a dual converter.
 - (b) Draw & explain the operation of single phase McMurray full bridge inverter.
 - (c) Draw and explain the working of step up/step down chopper.
 - (d) Justify FCT as a voltage controlled device with characteristics.
 - (e) Differentiate between Class A and Class B chopper. (Any four points)
- 5. Attempt any TWO of the following : 12**
- (a) Describe the working of a single phase to single phase cyclo-converter with neat diagram.
 - (b) Draw & explain the arc welding using SCRs.
 - (c) Draw & explain the operation of three phase bridge inverter with input circuit commutation.
- 6. Attempt any TWO of the following : 12**
- (a) Describe speed control method for AC servo motor and list their applications.
 - (b) Draw input & output waveform of cyclo-converter to produce $1/4^{\text{th}}$ of input frequency. Show the firing sequence of thyristors in the relevant waveform.
 - (c) Describe the working of induction heating and dielectric heating control with suitable diagram.
-