11718

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. (A) Attempt any SIX of the following : **12**

(a) Draw the symbols of (i) SCR (ii) DIAC

(b) State advantages of power transistor (any two)

(c) Define holding and latching current.

(d) Define chopper. State its types.

(e) List different turn-on methods of SCR.

(f) State the applications of inverter.

(g) State the use of free wheeling diode in controlled rectifiers.

(h) Draw the circuit diagram of fan speed regulator using TRIAC.

(B) Attempt any TWO : **8**

(a) Compare controlled and uncontrolled rectifiers. (any four points)

(b) Draw the circuit diagram and waveforms of step up chopper using MOSFET.

(c) Draw the circuit diagram of light dimmer using DIAC and TRIAC and sketch the input-output waveforms.

2. Attempt any FOUR : **16**

(a) Draw the circuit diagram input-output waveforms and explain the working of single phase half wave controlled rectifier with R load.

(b) Draw and explain the circuit diagram of series inverter with waveforms.

(c) Draw the circuit diagram of emergency lighting system using SCR and describe its working.

(d) Draw and explain the VI characteristics of DIAC.

(e) Explain SCR triggering using UJT with neat circuit diagram.

(f) Compare step up and step down chopper. (any four points)

3. Attempt any FOUR : **16**

(a) Compare SCR & TRIAC. (any four points)

(b) Draw the neat circuit diagram and waveforms of single phase centre tapped full wave controlled rectifier with RL load.

(c) Draw and explain the VI characteristics of power transistor.

(d) Draw and explain the VI characteristics of VJT.

(e) Draw the circuit diagram of single phase fully controlled bridge rectifier with R load. Draw the waveforms of input and output voltage.

(f) Describe the need of polyphase rectifier.

4. Attempt any FOUR : **16**

(a) Draw the circuit diagram and waveforms of step down chopper and explain it.

(b) Draw and explain the VI characteristics of SCR.

(c) Describe the working of DC flasher circuit using SCR with neat diagram.

(d) Draw the neat block diagram of gate triggering. State the advantages of gate triggering.

(e) Draw the circuit diagram of temperature controller using SCR with neat circuit diagram.

(f) Draw the circuit diagram of three phase half wave uncontrolled rectifier. Draw its input and output waveforms.

5. Attempt any FOUR : **16**

(a) Draw and explain the battery charger using SCR.

(b) Draw the construction of GTO & explain the working principle.

(c) Describe the operation of pulse transformer used in triggering circuits.

(d) Explain RC triggering circuit with neat circuit diagram & waveforms.

(e) Draw the symbol & vertical structure of power transistor and explain.

(f) Define firing angle and conduction angle. What is the effect of firing angle on average output voltage ?

P.T.O.

6. Attempt any FOUR : **16**

(a) Draw and explain the diagram of electronic timer using SCR.

(b) Draw the circuit diagram of three phase controlled half wave rectifier with R load. Draw its input and output waveforms.

(c) Draw & explain the class C commutation with neat circuit diagram and waveforms.

(d) Draw and explain the two transistor analogy of SCR.

(e) Describe the construction of IGBT.

(f) Define commutation. List various types of commutation.
