22326

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) Use of Non-programmable Electronic Pocket Calculator is permissible.

(6) 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) Draw the symbol and VI characteristics of Power MOSFET.

(b) Draw the V-I characteristics of the Power transistor and show all the region.

(c) State the types of protection circuits.

(d) Give the types of SCR turn on methods.

(e) Define firing angle and conduction angle.

(f) Define transfer time and backup time of UPS.

(g) Draw the block diagram of SMPS.

2. Attempt any THREE of the following : **12**

(a) Describe the construction of IGBT with neat sketch.

(b) Draw the V-I characteristics of SCR with neat sketch and explain its forward blocking and conduction mode.

(c) Explain the operation of R triggering with neat circuit diagram.

(d) Explain the operation of single phase half controlled Rectifier with RL Load.

3. Attempt any THREE of the following : **12**

(a) Explain two transistor analogy of SCR with neat diagram.

(b) Explain the operation of single phase fully controlled rectifies with RL load.

(c) Explain the operation of Burglar alarm with circuit diagram.

(d) Explain the operation AC circuit breaker.

4. Attempt any THREE of the following : **12**

(a) Draw a neat labelled V-I characteristics of DIAC and explain it.

(b) Describe triggering of SCR using UJT relaxation oscillator.

(c) State the effect of source impedance in controlled rectifier operation with circuit diagram.

(d) Describe the emergency lighting system with neat diagram.

(e) Describe the temperature controller using SCR.

5. Attempt any TWO of the following : **12**

(a) Draw VI characteristics of GTO and explain its operation with neat sketch.

(b) Explain Class C commutation with circuit diagram and waveforms.

(c) Explain half controlled bridge rectifier with R load with its circuit diagram and waveform.

6. Attempt any TWO of the following : **12**

(a) Explain auxiliary commutation with a neat circuit diagram.

(b) Draw the symbol and characteristics of the UJT, SCS, LASCR.

(c) Explain single phase full wave Midpoint (M2) controlled converter with R Load with necessary waveforms and circuit diagram.
