

313335

25226

3 Hours / 70 Marks

Seat No.

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- 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) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) 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) State any two applications of SCR.
- (b) Define :
 - (i) turn on period
 - (ii) chopping period
- (c) Define firing angle and conduction angle.
- (d) Draw the symbol of IGBT & SCR.
- (e) State the types of charge controller.
- (f) State the need of free wheeling diode in converter circuits.
- (g) State turn on methods of SCR.

2. Attempt any THREE of the following :

12

- (a) Draw and explain construction of IGBT.
- (b) Explain class A commutation method with waveform.



- (c) Explain three phase fully controlled bridge rectifier with R load.
- (d) Explain step down chopper with diagram.

3. Attempt any THREE of the following : 12

- (a) Explain single phase half controlled rectifier with RL load and free wheeling diode.
- (b) Draw the construction diagram & VI characteristic of TRIAC. State its any two applications.
- (c) Explain di/dt protection circuit.
- (d) Explain bulk-boost chopper with diagram.

4. Attempt any THREE of the following : 12

- (a) Explain RC triggering with neat diagram.
- (b) Explain single phase half wave bridge inverter with R load.
- (c) State and explain control strategy for the chopper.
- (d) Explain pulse width modulation with need and types.
- (e) Explain AC to AC converter using DC link with diagram.

5. Attempt any TWO of the following : 12

- (a) Draw and explain V-I characteristics of SCR and define holding current and latching current.
- (b) Explain R triggering with diagram and waveforms.
- (c) Explain single phase full wave controlled rectifier with RL load with diagram.

6. Attempt any TWO of the following : 12

- (a) Explain Snubber circuit and crowbar circuit with diagram.
 - (b) Explain single phase full wave inverter with RL load with diagram and waveforms.
 - (c) With the help of a block diagram, explain the method of speed control of fan using TRIAC. State its advantages.
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