



22326

11819

3 Hours / 70 Marks

Seat No.

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- 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**.*

Marks

1. Attempt **any five** of the following :

10

- State the applications of MOSFET (any two).
- Draw the V-I characteristics of power transistor.
- Draw the symbol of GTO and TRIAC.
- Define triggering. List the type of triggering.
- Define commutation. Give the types of commutation.
- Define transfer time and back up time of UPS.
- State the applications of power electronics.

2. Attempt **any three** of the following :

12

- Describe with neat sketch the construction and working principle of MOSFET.
- Draw construction of SCR using two transistor model. Explain its operation.
- Explain the operation of RC triggering circuit with neat diagram.
- Draw a neat diagram of 1ϕ half wave controlled converter with RL load. Give its operation.

3. Attempt **any three** of the following :

12

- Draw a neat labelling V-I characteristics of SCR and explain the region.
- Explain the operation of PUT relaxation oscillator with diagram.
- Explain with sketch the operation of single phase fully controlled midpoint configuration with R load.
- Give the operation of battery charger using SCR with a neat diagram.

P.T.O.



4. Attempt **any three** of the following :

12

- a) Explain the operation of snubber protection circuit with diagram.
- b) Explain the operation of opto coupler based triggering circuit with diagram.
- c) Give the concept of firing angle and conduction angle with a neat waveform.
- d) Draw the circuit diagram of DC static circuit breaker and give its operation.
- e) Describe emergency lighting system with neat diagram.

5. Attempt **any two** of the following :

12

- a) Draw a symbol and neat labelling V-I characteristics of GTO and explain its operation.
- b) Explain auxiliary commutation with a neat diagram. Also draw its waveform.
- c) Explain in detail over-voltage protection.

6. Attempt **any two** of the following :

12

- a) Give the operation of single phase full wave bridge controlled converter with RL load with a neat diagram. Also draw its waveform.
 - b) Give the effect of source impedance on converter operation.
 - c) Explain the operation of UPS with a neat block diagram.
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