

CBCS SCHEME

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15EC73

Seventh Semester B.E. Degree Examination, Dec.2023/Jan.2024 Power Electronics

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Mention and explain some applications of power electronics. (08 Marks)
b. What are the advantage of power diodes and power transistor? Mention the demerits of BJT. (08 Marks)

OR

- 2 a. Explain drain and transfer characteristics of n-channel depletion type MOSFET. (08 Marks)
b. Explain working of IGBT. (08 Marks)

Module-2

- 3 a. Explain working principle of SCR. (08 Marks)
b. Explain two-transistor analogy of SCR. (08 Marks)

OR

- 4 a. Mention and explain TURN OFF methods of SCR. (08 Marks)
b. Explain UJT triggering of an SCR. (08 Marks)

Module-3

- 5 a. What is commutation? Explain L – C turn off circuit. (08 Marks)
b. With waveform and circuit diagram explain single phase half controlled converter. (08 Marks)

OR

- 6 a. Explain working principle of single phase dual converter. (08 Marks)
b. Explain operation of single phase AC voltage controller. (08 Marks)

Module-4

- 7 a. What is a chopper? Explain different types. (08 Marks)
b. Mention the applications of chopper. (08 Marks)

OR

- 8 a. Explain working principle of buck regulator. (08 Marks)
b. Explain working of buck – boost regulator. (08 Marks)

Module-5

- 9 a. Explain the working of principle of PWM in inverter. (08 Marks)
b. Explain single phase bridge inverter. (08 Marks)

OR

- 10 Write short notes on :
a. Solid state relays
b. Types of solid state relays. (16 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.