

# CBCS SCHEME



18EC36

## Third Semester B.E. Degree Examination, Dec.2024/Jan.2025 Power Electronics and Instrumentation

Time: 3 hrs.

Max. Marks: 100

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

### Module-1

- 1 a. Interpret the control and gate characteristics of SCR with circuit diagrams and waveforms. (10 Marks)
- b. Illustrate RC triggering circuits with neat waveforms. (10 Marks)

OR

- 2 a. With a neat circuit diagram explain class A commutation circuit. (10 Marks)
- b. Summarize U.J.T. triggering (10 Marks)

### Module-2

- 3 a. Illustrate with neat diagram and waveform of Bridge controlled rectifiers with R and RL load. (10 Marks)
- b. Explain step up / down chopper with neat circuit diagram and waveforms. (10 Marks)

OR

- 4 a. Illustrate with neat diagram and waveform of full wave controlled rectifiers with RL load. (10 Marks)
- b. Explain with neat diagram and waveforms Half wave controlled rectifiers with R and RL load. (10 Marks)

### Module-3

- 5 a. Explain discontinuous mode of isolated fly back converter with neat circuit diagram and waveforms. (10 Marks)
- b. Illustrate with waveforms, full bridge inverter with RL load. (10 Marks)

OR

- 6 a. Explain with neat diagram isolated forward converter. (10 Marks)
- b. Explain the types of static error. Describe briefly the static characteristics of instrumentation. (10 Marks)

### Module-4

- 7 a. Explain successive approximation type DVM. (10 Marks)
- b. Explain in detail the unbalanced Wheatstone's bridge with neat diagram. (10 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.

OR

- 8 a. Explain in detail the unbalanced Wein's bridge with neat diagram. (10 Marks)
- b. Explain function generator with neat block diagram. (10 Marks)

**Module-5**

- 9 a. Explain the working of LVDT. (08 Marks)
- b. Describe the structure and operation of PLC. (12 Marks)

OR

- 10 a. With neat diagram explain Resistance Thermometer. (08 Marks)
- b. Explain the parameters and advantages of transducers. (12 Marks)

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