



C23-EE-404

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BOARD DIPLOMA EXAMINATION, (C-23)
MARCH/APRIL—2025
DEEE – FOURTH SEMESTER EXAMINATION
POWER ELECTRONICS AND PLC

Time : 3 Hours]

[Total Marks : 80

PART—A

3×10=30

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Draw the symbols of (a) SCR, (b) SUS and (c) GTOSC.
2. Draw gate characteristics of SCR.
3. State any six applications of IGBT.
4. Classify the converters in various aspects.
5. State the need of freewheeling diode.
6. List any six applications of inverters.
7. List the factors affecting the speed of DC motors.
8. Name the various devices used to suppress voltage spikes.
9. Draw ladder diagram for NAND gate and NOR gate.
10. Draw the block diagram of PLC and label its parts.

PART—B

10×5=50

Instructions : (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. Explain the VI characteristics of SCR with the help of neat diagram.
12. Explain the VI characteristics of DIAC with the help of neat diagram.
13. Draw and explain the VI characteristics of MOSFET.
14. Explain the working of single phase half wave controlled converter with R-L loads with a neat diagram.
15. Explain the working of three phase full wave controlled converter with resistive load with a neat diagram.
16. Explain the speed control of 3-phase induction motor using voltage controller with a neat diagram.
17. Explain the illumination control using TRIAC with a neat diagram.
18. What is SCADA? Explain various communication methods used in SCADA.

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