



C23-EE-404

23438

BOARD DIPLOMA EXAMINATION, (C-23)
MARCH/APRIL—2026
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 thyristor family devices.
 - (a) GTOSCR
 - (b) LASCR
2. State any three applications of SCR.
3. Classify power transistors.
4. Define the following terms :
 - (a) Chopper
 - (b) Inverter
5. Classify inverters based on number of phases.
6. State any three advantages of MOSFET inverters over SCR inverters.
7. List the factors affecting the speed of DC motors.

8. Draw the light dimming circuit using TRIAC.
9. Draw the ladder diagram for AND GATE.
10. List any three softwares used in SCADA system.

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 construction, working of SCR with neat diagrams and draw its V-I characteristics.
12. Explain the V-I characteristics of DIAC with the help of neat diagram.
13. (a) Explain the construction and working of IGBT with neat diagrams.
(b) Draw the transfer characteristics of IGBT.
14. Explain the working of single-phase full wave converter with resistive load with neat diagram and wave forms.
15. Explain the working of single-phase bridge inverter with neat diagram and wave forms.
16. Explain the speed control of three phase induction motor using V/F control.
17. Explain the working of emergency lamp circuit using SCR.
18. Explain the block diagram of PLC with a neat diagram.

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