



C14-EE-604

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BOARD DIPLOMA EXAMINATION, (C-14)
MARCH/APRIL—2018
DEEE—SIXTH SEMESTER EXAMINATION
POWER ELECTRONICS

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 the following :
 - (a) DIAC
 - (b) SUS
 - (c) PUT
2. State any three advantages of GTO SCR over SCR.
3. State the necessity of commutation of SCR.
4. What is the need of freewheeling diode in convertors?
5. State any three applications of AC regulator.
6. Classify the inverters based on the type of connection.
7. State any three applications of cycloconverters.

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8. State any three advantages of thyristor-controlled devices.
9. State the factors affecting the speed of AC motors.
10. Mention any three devices used for suppressing the voltage spikes.

PART—B

10×5=50

Instructions : (1) Answer *any five* questions.
(2) Each question carries **ten** marks.
(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Explain the construction and $V-I$ characteristics of SCR with neat diagrams. 4+6
12. Explain different modes of operation of TRIAC with neat diagrams.
13. Explain Class-B commutation of thyristor with neat sketch.
- * 14. Explain the working of single-phase half-wave controlled converter using $R-L$ load with neat waveforms.
15. Explain the operation of chopper in all four quadrants.
16. Explain the operation of single-phase centre-tapped cyclo-converter with neat sketches.
17. Explain the methods of speed control of DC series motor using choppers.
18. Explain the operation of battery charging using SCR with a neat circuit diagram.
