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C14-EE-604

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BOARD DIPLOMA EXAMINATION, (C-14)
OCT/NOV—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 for the following :
 - (a) GTOSCR
 - (b) ASCR
 - (c) MCT
2. Compare the characteristics of GTOSCR and SCR in three aspects.
3. List any six applications of SCR.
4. Classify converters based on (a) V-I characteristics (b) type of control of output voltage
5. Define choppers and classify them based on magnitude of output voltage.

- * 6. State any three applications of Inverters.
7. Define cycloconverter. Which commutation technique is used in step up cycloconverter.
8. List any six advantages of thyristor controlled drives.
9. List the factors affecting the speed of AC Motors.
10. State any three devices used to suppress the spikes in supply system.

PART—B

10×5=50

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

11. (a) Explain the constructional details of SCR.
(b) Draw and explain gate characteristics of SCR.

12. State and explain triggering modes of TRIAC.

* 13. What is commutation in SCR? Explain class-B commutation with neat sketches.

14. Explain the working of 1-phase full wave controlled converter (RL load) with waveforms.

- * **15.** Explain the operation of chopper in all four quadrants.
- 16.** Draw and explain the operation of series inverter with waveforms.
- 17.** Draw and explain the speed control of 3-phase induction motor by using converters and inverters.
- 18.** (a) Explain the battery charger circuit using SCR with the help of neat circuit diagram.
- (b) State any five types disturbances in commercial power supply.
