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C09–EE–604

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BOARD DIPLOMA EXAMINATION, (C–09)

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. List any three SCR ratings.

2. List the applications of GTOSCR.

3. Distinguish between SCR and TRIAC.

4. List any three applications of converters.

5. Compare between 3-phase and single-phase converters in any three aspects.

6. List any three applications of inverters.

7. State the advantages of thyristor AC voltage controllers.

8. List any three factors that affect the speed of an induction motor.

9. Draw the neat circuit diagram of light dimmer circuit using DIAC and TRIAC.

10. List the devices used to suppress spikes in supply voltages.

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 features of TRIAC.

(b) Draw and explain the V-I characteristics of TRIAC.

12. *(a)* Explain the constructional details of GTOSCR with neat diagrams.

(b) Compare between LASCR and SCR.

13. *(a)* Draw and explain the working of IGBT.

(b) Draw and explain the emergency lamp circuit using SCR

14. Explain three-phase fully controlled converter with resistive load with neat diagrams.

15. *(a)* Explain the operation of chopper in all four quadrants.

(b) Explain single-phase full-wave (fully controlled) converter using resistance load.

16. Explain the principle of operation of a single-phase center-tapped cycloconverter with neat diagrams.

17. Explain the speed control of DC shunt motor using single-phase half-wave thyristor driver.

18. Draw and explain the block diagram of an Off-line preferred and interactive type UPS.

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