



C09-EE-604

3765

**BOARD DIPLOMA EXAMINATION, (C-09)
OCT/NOV—2017
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 SCR firing circuit using UJT.
2. Draw the symbols of the following devices :
 - (a) DIAC
 - (b) TRIAC
 - (c) LASCR
3. State any three advantages of TRIAC.
4. Define chopper and state its types.
5. Classify the converters on the basis of number of phases, rectification and on the direction of current.
6. Define inverter and state its any two applications.
7. State any three factors which affect the speed of a DC motor.

- * 8. Draw the speed control diagram of DC shunt motor using chopper.
- 9. State different types of disturbances in electrical power supply systems.
- 10. Draw the light dimmer circuit using DIAC and TRIAC.

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. Draw and explain the volt-ampere characteristics of TRIAC.
- 12. Explain the construction and working of IGBT (Insulated Gate Bipolar Transistor).
- 13. Explain the following operations of chopper :
 - (a) Voltage-frequency control
 - (b) Constant frequency control
- 14. Explain the working of single-phase full-wave controlled converter with resistive load.
- 15. Explain the working principle of cyclo-converter with a neat sketch.
- 16. Explain the speed control of induction motor by voltage-frequency control method.
- 17. Explain the working of an online UPS with a neat sketch.
- * 18. (a) Explain in brief about class-E communication.
 - (b) Draw the block diagram of offline preferred type UPS.

★ ★ ★