



C09-EE-604

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**BOARD DIPLOMA EXAMINATION, (C-09)
OCT/NOV—2015
DEEE—SIXTH SEMESTER EXAMINATION
POWER ELECTRONICS**

Time : 3 hours]

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 following devices :
 - (a) DIAC
 - (b) TRIAC
 - (c) LASCR
- * 2. Compare SCR with LASCR in three aspects.
3. State the need of commutation of SCR.
4. Briefly explain the constant frequency control method of chopper.
5. State the need of freewheeling diode.
6. Define cyclo-converter and state its types.
7. State the factors affecting the speed control of AC motor.

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8. State the factors affecting the speed of a DC motor.
9. State the different types of batteries used in UPS.
10. State the devices used to suppress the voltage spikes in supply voltages.

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 TRIAC firing circuit using DIAC.
12. Explain the construction and working of IGBT (Insulated Gate Bipolar Transistor).
13. Explain the working of single-phase half-wave fully controlled converter with $R-L$ load.
14. Explain the working principle of chopper with a neat sketch.
15. Explain the working of PWM (Pulse Width Modulation) inverter in multiple-pulse modulation.
16. State the advantages of speed control of AC/DC motors using thyristors.
17. Draw and explain burglar alarm circuit.
18. (a) Explain the working of DIAC.
(b) Draw the block diagram of off-line preferred type UPS.

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