



C09-AEI-606 A

3719

BOARD DIPLOMA EXAMINATION, (C-09)
MARCH/APRIL—2014
DAEI—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.

1. Draw the volt-amp characteristics of SCR and indicate different modes.
2. List the construction details of DIAC.
3. What is need for freewheeling diode?
4. List the principle of operation of chopper.
5. Define inverter and classify inverters.
6. State the basic principle of cycloconverter.
7. What are the factors affecting the speed of DC motors?
8. What are the applications of AC voltage controller?
9. List the different types of disturbance in commercial power supply.
10. What are the advantages of switched mode power supply?

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PART—B

10×5=50

Instructions : (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

- 11.** (a) Explain the construction details of GTO SCR and draw the *V-I* characteristics. 6
- (b) What are the drawbacks of GTO SCR over conventional SCR? 4
- 12.** (a) Draw and explain SCR triggering circuit using UJT. 5
- (b) Explain the operation of the first-quadrant chopper. 5
- 13.** Explain the working of three-phase half-controlled converter with neat waveforms for resistive load.
- 14.** Explain the working of PWM inverters with neat diagrams.
- 15.** Explain the speed control of induction motor by using converters and inverters (V/F control).
- 16.** Explain the speed control of DC shunt motor using chopper.
- 17.** (a) Explain the operation of burglar alarm circuit using SCR. 5
- (b) Explain the operation of light dimmer circuit using TRIAC. 5
- 18.** Explain the working of battery charger circuit using SCR with neat circuit diagram.

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