



C09-EE-604

**3765**

**BOARD DIPLOMA EXAMINATION, (C-09)  
MARCH/APRIL—2014  
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. State and define any three representations of SCR ratings.
2. Define holding current and latching current of SCR.
3. State any three applications of GTO SCR.
4. Classify the converters based on type of pulses and  $V-I$  characteristics.
5. State any three advantages of using free wheeling diode.
6. Classify the inverters based on type of connection and type of output voltage.
7. State the factors affecting the speed of DC motor.
8. Write any three differences between converter and chopper controlled DC drives.
9. State any six disturbances occur in a power system.
10. Classify the UPS and state any two applications of UPS.

\*

**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.** Explain the constructional details of TRIAC and explain its  $V-I$  characteristics with neat diagram. 10
- 12.** Explain in detail the mechanism in protecting power devices. 10
- 13.** (a) Explain the necessity of commutation power electronics. 5  
(b) Explain the operation of emergency lamp circuit with a neat diagram. 5
- 14.** Explain the working of single-phase full-wave fully controlled converter using  $R-L$  load. 10
- 15.** What is chopper? Explain the working principle of chopper. 2+8
- 16.** What is pulse width modulation (PWM) inverter? Explain the working of single-pulse modulation of PWM inverter. 10
- 17.** Explain the speed control of an induction motor using voltage frequency control using converter and inverter. 10
- 18.** Explain in detail the various types of disturbances in commercial power supply. 10

\*

\*\*\*