



C09-EE-604

**3765**

**BOARD DIPLOMA EXAMINATION, (C-09)**

**MARCH/APRIL—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 volt-ampere characteristics of IGBT.
2. State the need of communication of SCR.
3. Draw the SCR firing circuit using UJT.
4. What is meant by chopper? State its applications.
5. State the advantages of free-wheeling diode.
6. Define cyclo-converter and state its types.
7. State the factors affecting the speed of a DC motor.
8. State the factors affecting the speed control of AC motors.
9. State any three advantages of SMPS.
10. State the classification 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 forward bias and reverse bias characteristics of SCR.

**12.** Explain the different modes of triggering of TRIAC.

**13.** Explain the control methods of chopper with neat sketches.

**14.** Explain the working of single-phase half-wave fully controlled converter with *R-L* load.

**15.** Explain the working of a simple series inverter.

**16.** Explain the speed control of induction motor by using converter and inverter method (V/F control).

**17.** Explain the working of an ON-line UPS with a neat sketch.

**18.** (a) Explain the working of DIAC. 5

(b) Draw and explain the working of emergency lamp circuit using SCR. 5

\*

\*\*\*