C 1108 (Pages : 2) Name.....

Reg. No.....

# SIXTH SEMESTER B.TECH. (ENGINEERING) [09 SCHEME] DEGREE EXAMINATION, APRIL 2016

## EC/PTEC 09 L01—POWER ELECTRONICS

Time : Three Hours Maximum : 70 Marks

### Part A

*Answer* **all** *questions.*
*Each question carries* 2 *marks.*

1. Why lateral current flow in the base is the limiting factor in BJT performances ?
2. What are the merits of single-phase rectifier with RL load ?
3. What is the function of cycloconverter ?
4. Where buck regulators are used ?
5. Give the specification and rating of IGBT.

(5 × 2 = 10 marks)

### Part B

*Answer any* **four** *questions.*
*Each question carries* 5 *marks.*

6. Explain the operation of triggering circuit used in UJT.
7. Explain the principle of operation of phase controlled rectifiers.
8. Explain the working of a chopper.
9. Differentiate between buck and boost switching regulator.
10. Draw and explain the V-I characteristics of power diode.
11. Explain the features of uninterruptable power supply.

(4 × 5 = 20 marks)

### Part C

*Answer* **all** *questions.*
*Each question carries* 10 *marks.*

12. Describe the construction, operation and characteristics of Thyristor.

*Or*

13. (a) Draw the structure of MOSFET and explain its characteristics. (6 marks)
    (b) Explain the working of TRIAC. (4 marks)

**Turn over**

14. Explain the operation of pulse width modulated inverter with suitable figures.

*Or*

15. Analyse the performance of half controlled and fully controlled converters.

16. Describe the working of single-phase a.c. regulator with RL load.

*Or*

17. (a) Discuss the mechanism of speed control of DC motors. (6 marks)

(b) Write a note on single-phase cycloconverter. (4 marks)

18. Describe the operation of buk-boost regulator.

*Or*

19. Discuss the working of uninterruptable power supply.

(4 × 10 = 40 marks)