K15F 0177

Reg. No. : ....

Name : ....

**V Semester B.Tech. Degree (Reg./Sup./Imp.-Including Part Time)
Examination, November 2015
(2006 and Earlier Admn.)
PTEC2K/EC2K 506 (B) : POWER ELECTRONICS**

Time : 3 Hours

Max. Marks : 100

Instruction : *Answer all questions.*

PART – A

1. a) Describe the holding and latching current as applicable to an SCR with the help of its static characteristics.   5

    b) Explain latch up in IGBT.   5

    c) Derive expression for average load voltage and rms load voltage for single phase half wave controlled rectifier with resistive load.   5

    d) Explain multiple pulse width modulation in inverter.   5

    e) Explain the basic principle of operation of cycloconverter with neat diagram.   5

    f) Explain the principle of step up choppers.   5

    g) Draw circuit and waveforms for Boost regulator.   5

    h) What is SMPS ? Write advantages and disadvantages of SMPS.   5

PART – B

2. With the help of neat diagram, explain the two transistor analog of an SCR. Also explain various triggering conditions of SCR.   15

OR

3. Draw the turn off characteristics of an SCR and explain the mechanism of turn off. 15

P.T.O.

4. Explain PWM control techniques in inverters.   15

OR

5. Describe the working of 1 φ fully controlled bridge converter in the following two modes i) Rectifying mode   (ii) Inversion mode.   15

6. With the help of circuit diagram, explain the operation of center tapped transformer based 1 φ to 1 φ cycle converter.   15

OR

7. Explain the methods of control the speed of DC motor.   15

8. Describe fly back SMPS with relevant equivalent circuit and waveform. Derive expressions for current and voltage.   15

OR

9. Explain the basic need of switching regulator. Discuss the principle of Buck regulator with associate waveform.   15

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