

Seat No.	
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T.E. (Electronics & Telecom.) (Part - III) (Semester -VI)

Examination, May - 2015

**INDUSTRIAL AND POWER ELECTRONICS**

Sub. Code:45695

Day and Date : Wednesday, 13 - 05 - 2015

Total Marks : 100

Time :2.30 p.m. to 5.30 p.m.

- Instructions :
- 1) All questions are compulsory.
  - 2) Figures to right indicate full marks.
  - 3) Assume suitable data if necessary.
  - 4) Use of non-programmable calculator is allowed.

SECTION - I

Q1) Solve any two:

[16]

- a) Draw and explain with neat circuit diagram working & characteristics of GTO.
- b) Explain with neat diagram  $dv/dt$  and  $di/dt$  protection circuit for SCR.
- c) Draw & explain Gate characteristics of SCR and explain different ratings of thyristors.

Q2) Solve any two:

[16]

- a) Explain operation of PUT as a relaxation oscillator with characteristic and explain PUT triggering circuits for SCR.
- b) Discuss an application of thyristors as static circuit breakers both AC & DC.
- c) Explain with neat circuit diagram & waveforms, the working operation of full wave, full controlled converter with R-L load.

*P.T.O.*

Q3) Write short notes (any three):

[18]

- a) Time delay method.
- b) Three phase half wave converter.
- c) SCR turn off methods.
- d) Soft start method.

SECTION - II

Q4) Solve any two:

[16]

- a) State different methods of controlling output voltage of inverter and explain any one method.
- b) Discuss the harmonic reduction method for Inverter using PWM technique.
- c) With the help of circuit diagram explain operation of speed control of DC motor using Dual convertor.

Q5) Solve any two:

[16]

- a) Discuss various operating modes of DC motor.
- b) Draw and explain speed control of Induction using rotor resistance method.
- c) Draw and explain various switches in PLC's.

Q6) Solve any two:

[18]

- a) Draw and explain Induction heating and Dielectric Heating techniques.
- b) Draw and explain different types of UPS.
- c) Write a short note on Ultrasonic's generators.

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