

(Please write your Exam Roll No.)

Exam Roll No.

END TERM EXAMINATION

SIXTH SEMESTER [B.TECH.] MAY-JUNE 2016

Paper Code: ETEE-306

Subject: Power Electronic

Time : 3 Hours

Maximum Marks :75

Note: Attempt any five questions including Q.no.1 which is compulsory. Select one question from each unit.

- Q1 (a) Explain the function of snubber circuit. (5)
(b) Explain the role of feedback diodes in an inverter. (5)
(c) Enumerate the applications of a cycloconverter. (5)
(d) What are the advantages of PWM inverters? (5)
(e) Explain the principle of step up DC chopper. (5)

UNIT-I

- Q2 (a) Explain the operation and characteristic of IGBT. (7.5)
(b) Explain the operation and applications of GTO. (5)
- Q3 (a) Explain the parallel operation of thyristors. (6)
(b) Explain the operation of RC half wave firing circuit with relevant waveforms. (6.5)

UNIT-II

- Q4 (a) Explain the operation of single phase fully controlled converter with R-L load. (6.5)
(b) Explain the working of a single phase dual converter with circulating current mode (6)
- Q5 (a) Explain the principle of operation of a single phase to single phase step up cycloconverter with relevant waveforms. (6.5)
(b) A single phase ac voltage controller comprising a thyristor and a diode supplies a purely resistive load of 10 ohms from a 230V, 50 Hz supply. Calculate: (6)
(i) r.m.s value of load voltage (ii) average and r.m.s value of thyristor current

The delay angle of thyristor is 90° .

UNIT-III

- Q6 Explain the operation of a single phase MC Murray inverter with relevant waveform. Explain the Design of commutation circuit. (6.5)
- Q7 Explain the operation of a 3-phase voltage source inverter in 120° conduction mode. Draw phase and line Voltages waveform across the load. (6)

UNIT-IV

- Q8 (a) Explain the operation of a four quadrant chopper. (6)
(b) Give a comparison between VSI and CSI. (6.5)
- Q9 Explain the operation of a Voltage commutated chopper with relevant waveforms. Discuss the design of its commutating elements. (12.5)