Reg. No. :

Question Paper Code: 31351

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

Fifth Semester

Electrical and Electronics Engineering

01UEE501–POWER ELECTRONICS

(Regulation 2013)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Compare latching and holding current of SCR.

2. Draw TRIAC characteristics.

3. Why freewheeling diodes are preferred in rectifier circuits?

4. What is the effect of source impedance on the performance of converter?

5. Comment on forced commutation.

6. What is a DC chopper?

7. Define harmonics.

8. List the various advantage of using PWM control to inverters.

9. What is a matrix converter?

10. What is an AC voltage controller?

PART - B (5 x 16 = 80 Marks)

11. (a) Describe the current commutation technique to turn off the SCR with neat sketch and waveform.   (16)

(b) Draw and explain the switching characteristics of IGBT with neat diagrams. (16)

12. (a) Describe the two modes of operation of single-phase full converter with inductive load. (16)

Or

(b) Explain the operation of three phase semi converter with neat waveforms. (16)

13. (a) Explain the working of Buck-Boost converter with sketch and waveforms and also drive the expression for I_s. (16)

Or

(b) Describe the operation of voltage commutated chopper with relevant diagrams. (16)

14. (a) With neat sketches describe the working of three-phase inverter using 180 degree mode. (16)

Or

(b) Explain the working of multilevel inverter with neat diagram. (16)

15. (a) Discuss the operation of single-phase step-up and step-down cycloconverter. (16)

Or

(b) Explain operating principle of single phase to single phase cyclo-converter with continuous and discontinuous load current with circuit and wave form. (16)

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