Reg. No. : | | | | | | | | | | |

Question Paper Code: 35301

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

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. Draw TRIAC characteristics.
2. Define holding current of a SCR.
3. Write down the equation of single-phase full converter with RL load.
4. What do you mean by dual converter?
5. What are the two types of control strategies in dc-dc chopper?
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) (i) Explain briefly about the snubber circuit. (8)

(ii) Explain the turn-on characteristics of an SCR. (8)

Or

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

12. (a) With neat sketches, explain the effect of source impedance in the operation of three phase full converter. Derive the expression for average output voltage. (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 different methods of Harmonic control in inverters. (16)

15. (a) Illustrate the following

(i) Single phase to Three phase cyclo converter. (8)

(ii) Matrix converter. (8)

Or

(b) Explain the operation of single phase AC voltage controller with RL load. Derive the expression for *rms* output voltage. (16)

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