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Question Paper Code: 51002

M.E. DEGREE EXAMINATION, NOV 2018

First Semester

Power Electronics and Drives

15PPE102 - ANALYSIS OF POWER CONVERTERS

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1. (a) Explain the working principle of single phase half controlled converter with R-L load with neat sketch. CO1- U (20)
Or
(b) Discuss in detail about the various performance characteristics of single phase controlled rectifiers. CO1- U (20)
2. (a) Explain the operation of a three phase fully controlled bridge converter with necessary wave forms and equations for RLE load and freewheeling diode. CO2 - U (20)
Or
(b) Discuss the impact of source impedance and overlap in 12 pulse converter in detail. CO2- U (20)
3. (a) With necessary circuit and waveforms, explain the principle of operation of step down DC to DC converter with RL load. CO3- U (20)
Or
(b) Draw the circuit of resonant and quasi resonant converters and explain their working principle with necessary waveforms in detail. CO3- U (20)

4. (a) Explain the operation of single phase ac voltage controller with resistive load and also derive an expression for output voltage. CO4- U (20)

Or

- (b) Draw the circuit of Matrix converter and explain its working principle with necessary waveforms in detail. CO4- U (20)

5. (a) Explain the operation of three phase cycloconverters with necessary waveforms in detail. CO5- U (20)

Or

- (b) Explain the operation of load commutated cycloconverters with necessary waveforms in detail. CO5- U (20)
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