

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Question Paper Code: U3906

M.E. DEGREE EXAMINATION, NOV 2023

Professional Elective

Power Electronics and Drives

21PPE506– MODERN RECTIFIERS AND RESONANT CONVERTERS

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1. (a) Discuss the AC line current harmonic standards IEC 1000-IEEE 519 in detail. CO1- U (20)
Or
(b) Briefly explain about Average power-RMS value of a waveform- Power factor in harmonic analysis. CO1- U (20)
2. (a) Analyze the Modeling losses and efficiency in CCM high quality rectifiers. CO2- Ana (20)
Or
(b) Analyze the solution for converter to increase the Efficiency η . CO2- Ana (20)
3. (a) Identify and Analyze the two commonly used control method for power supplies? CO3- Ana (20)
Or
(b) Discuss the different types of Slope Compensation to Correct Problems in Current Mode control method? CO3- Ana (20)
4. (a) Describe in detail about state space averaged model for an ideal buck converter. CO4- U (20)
Or
(b) Write short notes on CO4- U (20)
 - (i) Review of linear system analysis (10 marks)
 - (ii) State space averaging (10 marks)

5. (a) Identify the controller specifications for design of controller. CO5- App (20)

Or

(b) Draw a block schematic and explain the principle of operation of linear power supplies. What are the main shortcomings and applications? CO5- App (20)