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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)**

M.Tech I Year I Semester Regular & Supplementary Examinations February 2018

ANALYSIS OF POWR ELECTRIC CONVERTERS

(Power Electronics)

Time: 3 hours

Max. Marks:60

(Answer all Five Units 5 X 12 =60 Marks)

UNIT-I

- 1 a Discuss the operation of AC voltage controller with PWM control 6M
b Write short notes on effect of source and load inductance of AC voltage controllers 6M

OR

- 2 Finding the performance parameters of a 3- Φ Bi-directional controller supplies a star connected resistive load of $R=10\Omega$ and a Line to Line input voltage 208V at 60HZ, if the delay angle $\alpha =$ Determine a) RMS output phase voltage b) Input power factor c) Expressions for the instantaneous output voltages 12M

UNIT-II

- 3 a list out the applications of cyclo converters 6M
b list out the advantages and disadvantages of cyclo converters? 6M

OR

- 4 The input voltage to the bridge type cyclo converter is 120v, 60hz. The load resistance is 5Ω and the load inductance is 40mH. The frequency of the out put voltage is 20hz if the converter is operated as semi converter such that $0 \leq \alpha \leq \pi$ and the delay angle is $2\pi/3$, determine a) RMS out put voltage b) RMS value of each thyristor current c) Input power factor 12M

UNIT-III

- 5 a What are the applications of 3- Φ converters 6M
b Explain the working operation of buck regulator with circuit diagram and wave forms 6M

OR

- 6 Discuss the following power factor improvement techniques
a)Three phase PWM converter 5M
b)Twelve pulse converter 12M

UNIT-IV

- 7 a List out the advantages of 1- ϕ inverters 6M
b What are the applications of 1- ϕ Inverters 6M

OR

- 8 Briefly discuss about the voltage control of single phase inverter of
a) Single pulse PWM control 3M
b) Multi pulse PWM control 3M
c) Sinusoidal PWM control 12M

UNIT-V

- 9 Explain the operation of 3- ϕ PWM inverter of 180 degree Conduction of out put voltage with resistive load 12M

OR

- 10 a List out advantages and disadvantages of 3- Φ PWM inverter 6M
b What are the applications of 3- Φ PWM inverters 6M

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