R19

Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
M.Tech I Year II Semester Regular Examinations Oct 2020
POWER ELECTRONIC CONVERTERS
(Power Electronics)

Time: 3 hours   Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Discuss about any one driver circuit for MOSFET.	6M
	b	Briefly explain about commutation techniques of SCR.	6M

OR

2	a	Briefly explain static and dynamic characteristics of SCR.	6M
	b	Explain about the operation of power IGBT.	6M

UNIT-II

3	a	Discuss the operation of single phase full controlled converter with neat diagrams:	6M
	b	A single phase half converter is feeding RLE load with the source voltage of 220V, the average load current is 5A, and R=0.5Ω, L= 5mH. Find the firing angle α for E=120V and E=-120V.	6M

OR

4	a	Briefly explain the operation of three phase semi converters with neat diagram.	8M
	b	What is meant by phase control?	4M

UNIT-III

5	a	Discuss about Cuk converters.	6M
	b	Briefly explain the design concepts of choppers need to be considered.	6M

OR

6	a	Explain about the modes of operation of Boost converters.	6M
	b	A step down DC chopper has input voltage of 230V with 10Ω load resistor connected, voltage drop across chopper is 2V, when it is on. For the duty cycle of 0.5, calculate average and RMS value of output voltage.	6M

UNIT-IV

7	a	Explain the working concept of voltage source inverters.	6M
	b	Mention the methods to minimize harmonic distortion in inverters.	6M

OR

8	a	What is the working principle of Current source inverters, Explain?	6M
	b	Mention the methods of voltage control in inverters.	6M

UNIT-V

9	a	Discuss about the pulse width modulation techniques adopted for inverters.	6M
	b	Compare series and parallel inverters.	6M

OR

10	a	Briefly explain the operation of three phase inverter with 180 degree conduction mode.	8M
	b	What are the applications of CSI?	4M

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