Q.P. Code: 18EE0206 **R18**

Reg. No:

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

B.Tech II Year II Semester Supplementary Examinations July-2022

POWER ELECTRONICS

(Electrical and Electronics Engineering)

Time: 3 hours Max. Marks: 60

PART-A

(Answer all the Questions **5 x 2 = 10** Marks)

1	a	Define Latching current.	L2	2M
	b	What is Transformer utilization factor?	L1	2M
	c	What are the applications of dc chopper?	L1	2M
	d	What is meant by PWM control?	L2	2M
	e	What are the applications of Three phase voltage source inverters?	L2	2M

PART-B

(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

2	Explain briefly voltage commutation and Draw the output wave forms.	L2	10M

OR

3	Briefly explain Metal oxide semiconductor field effect transistor (MOSFET) and its switching characteristics.	L3	10M

UNIT-II

4	Explain the operation of single phase Full wave converter with R-Load with necessary Wave forms. Also, derive the output voltage, output current and RMS output voltages.	L3	10M

OR

5	Explain the operation of single phase half wave converter with RL-Load with necessary waveforms. Also derive the output voltage, output current and RMS output voltages.	L1	10M

UNIT-III

6	What is a dc chopper? Describe various types of chopper configurations with neat sketch.	L2	10M

OR

7	Explain the boost converter operation with help of diagram and also draw the output waveforms.	L2	10M

UNIT-IV

8	Analyze the single-phase half bridge Voltage Source Inverter and perform steady state analysis?	L4	10M

OR

9	Explain briefly single Phase Pulse width modulation with neat diagrams.	L2	10M

UNIT-V

10	Explain the three-phase Voltage Source Inverter with 120^0 conduction mode. Also derive the output voltage and output current?	L3	10M

OR

11	A 1-Ø bridge inverter delivers power to a series connected RLC load with R=2Ω and ωL=10Ω.The periodic time T=0.1 msec. What value of C should the load have in order to obtain load commutation for the SCRs. The thyristor turn off time is 10μsec.Take circuit turn off time as 1.5 tq. Assume that load current contains only fundamental component.	L3	10M

END