R18 Regulation *Subject code:2P5BB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech V Semester Supplementary Examinations, December 2024

POWER ELECTRONICS

(EEE)

Maximum Marks: 70 Date:28.12.2024 Duration: 3 hours

Note: 1.This question paper contains two parts A and B.
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X2M=20) Marks)		CO	Bloom Tx
1	Define Latching current?	1	L1
2	Draw the symbol of SCR,TRIAC?	1	L1
3	Define the types of commutation?	2	L1
4	Define the firing angle?	2	L1
5	What are the disadvantages of ac voltage controllers?	3	L1
6	Advantage of AC Voltage Controllers?	3	L1
7	Define Chopper.	4	L1
8	Define the voltage commutation?	4	L1
9	Define the Inverter .	5	L1
10	Define the main classifications of inverter.	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		CO	Bloom Tx
11	Explain the V-I characteristics of the SCR during turn ON and turn OFF conditions? [10M]	1	L2
	OR		
12	Discuss the different turn ON methods o Thyristor? [10M]	1	L2
13	An SCR has half cycle surge current rating of 3000A for 50 HZ supply. Calculate its one cycle surge current rating and I^2t rating? [10M]	2	L2
	OR		
14	Analyze the effect of source inductance in the operation of single phase fully controlled converter with relevant diagram and analysis? [10M]	2	L2
15	Explain the operation of a step down chopper with the help of circuit diagram and waveforms. [10M]	3	L2
	OR		
16	Explain the operation of a two quadrant type-B chopper with the help of circuit diagram and waveforms. [10M]	3	L2
17	What is meant by single PWM and discuss how the single PWM works? [10M]	4	L2

	OR		
18	Discuss how sinusoidal PWM works and mention what is meant by multiple PWM? [10M]	4	L2
19	Define Inverter and pulse width modulation techniques? [10M]	5	L2
	OR		
20	Draw and explain the wave forms for 120^0 mode of conduction of 3-phase bridge inverter? [10M]	5	L2