



R18 Regulation

Subject code:2P5BB

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Supplementary Examinations, November 2025

POWER ELECTRONICS

(EEE)

Maximum Marks: 70

Date: 20.11.2025

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.
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)		Marks	CO	BTL
1	Define Latching current?	2M	1	L1
2	Draw the symbol of SCR, TRIAC?	2M	1	L1
3	Define the types of commutation?	2M	2	L1
4	What are the disadvantages of ac voltage controllers?	2M	2	L1
5	What is meant by step-up and step-down chopper?	2M	3	L1
6	What is meant by current commutation?	2M	3	L1
7	Define the duty cycle ?	2M	4	L1
8	Define the voltage commutation?	2M	4	L1
9	What are the applications of a CSI?	2M	5	L1
10	What are the application of inverter?	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Explain the Dynamic characteristics of the SCR during turn ON and turn OFF conditions?	10M	1	L2
OR				
12	Discuss the different turn ON methods of Thyristor.	10M	1	L2
13	Explain the operation of single phase half controlled bridge rectifier with R-L Load. and derive the equations of E_o, I_o and E_{rms} ?	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 single phase AC voltage controller with RL load.	10M	3	L2
OR				

16	What are techniques in PWM method and explain any one?	10M	3	L2
17	With relevant diagram, explain four -quadrant operation of a DC chopper?	10M	4	L2
	OR			
18	Explain working principle of Jones's chopper with necessary circuit diagram and waveforms.	10M	4	L2
19	Draw a three-phase bridge inverter for 120 mode operation and explain its working. Give relevant waveforms also?	10M	5	L2
	OR			
20	Explain the operation of three- phase bridge inverter with neat circuit diagram and waveforms.?	10M	5	L2