R20 Regulation *Subject code: 3E6BC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Supplementary Examinations, April 2026

LINE-COMMUTATED AND ACTIVE RECTIFIERS

(EEE)

Maximum Marks: 70 Date: 23.04.2026 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	What is meant by filter?	2M	1	L1
2	why series inductor and L-section filters cannot be used with half-wave rectifiers?	2M	1	L1
3	Explain the terms minimum load current and bleeder load resistance with respect to a rectifier–LC filter.	2M	2	L1
4	How are rectifiers classified?	2M	2	L1
5	What is overlap period?	2M	3	L1
6	Draw the circuit diagram of 12 pulse converter?	2M	3	L1
7	What are the benefits of non isolation?	2M	4	L1
8	What is meant by flyback converter?	2M	4	L1
9	What is bidirectional rectifier?	2M	5	L1
10	What is bidirectional power supply?	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Explain the operation half wave diode rectifier with the help of load voltage and load current waveforms for RL Load.	10M	1	L2
	OR			
12	Explain the operation full wave diode rectifier with LC filter and draw the necessary waveforms.	10M	1	L2
13	Explain the operation of single phase fully controlled bridge converter in the continuous conduction mode.	10M	2	L2
	OR			
14	Explain the schemes for controlling the dc output of a 3¢ bridge rectifier using thyristors with dc side LC filter.	10M	2	L2
15	Explain the concept of Y/Z phase-shifting transformer with the help of connection diagram and phasor diagram?	10M	3	L2

	OR			
16	With rectifier configuration and current waveform explain the operation of 12-pulse series type diode rectifier.	10M	3	L2
17	Explain the operation of boost converter in the continuous conduction mode with steady state waveforms?	10M	4	L2
	OR			
18	Explain the operation of ac-dc fly back converter with neat circuit diagram and voltage, current waveforms?	10M	4	L2
19	Explain the operation of three phase inverter with suitable waveforms?	10M	5	L2
	OR			
20	Explain the closed loop operation of inverters?	10M	5	L2