

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***UG/PG DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2026****First Semester****Electrical and Electronics Engineering****PPST2414 – ANALYSIS OF POWER CONVERTERS****Regulations - 2024****Duration: 3 Hrs.****Maximum: 100 Marks****PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

Q.No	Questions	BTL	CO	Marks
1.	Compare SCR and GTO	L2	1	2
2.	Recall the use of freewheeling diodes.	L2	1	2
3.	Write the effect of source impedance in the operation of a 3 phase AC-DC converter	L2	2	2
4.	Summarize the applications of 12 pulse converter	L2	2	2
5.	Draw the symbol of MOSFET	L2	3	2
6.	List out the various Harmonics elimination techniques	L1	3	2
7.	Classify the voltage control of three phase inverters	L1	4	2
8.	What is current Source inverters	L2	4	2
9.	Give the PWM techniques for MLI	L2	5	2
10.	Mention the application of multilevel inverters	L2	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No	Questions	BTL	CO	Marks
11. a	Describe the principle of operation of a single-phase full converter with R-L load and no free-wheeling diode. Sketch the circuit diagram and draw the waveforms for source voltage, output voltage, load current and source current assuming a large inductor and no ripple in the output current. Derive the expression for average output voltage.	L3	1	16
Or				
b i	Explain the effect of source impedance in the operation of 1 phase full converter. Derive the expression for drop in output voltage	L3	1	12
ii	Discuss the reactive power and power balance in converter circuit	L3	1	4
12. a	Explain with circuit diagram and waveform the principle of three phase fully controlled converter with RL and RLE load and obtain expression for voltage and power factor.	L3	2	16

Or

b	Discuss on 12 pulse converters with required circuit diagram and relevant output waveforms.	L3	2	16
13. a	Analyze the principle of operation of half and full bridge inverter with its performance parameters.	L3	3	16
Or				
b	Analyze the operation of Uninterrupted Power Supply (UPS) with a neat sketch	L3	3	16
14. a	Analyze 180-degree conduction mode inverters with star and delta connected loads.	L3	4	16
Or				
b	Analyze the single, multi pulse and sinusoidal techniques for voltage control of three phase inverter with neat diagram.	L3	4	16
15. a	Explain the cascaded type multilevel inverter and give its applications.	L3	5	16
Or				
b	Elucidate the single phase and Three phase impedance source inverters with relevant diagrams	L3	5	16
