ELECTRICAL AND ELECTRONICS ENGINEERING

QUESTION BANK

Course Title : POWER ELECTRONICS

Course Code : 23EE501

Regulation : NR23

UNIT–V

AC-AC Converters

S.No		Questions	BT	CO	PO
Part – A (Short Answer Questions)					
1		What is Integral cycle or ON-OFF control?	L1	CO5	PO1
2		What is the formula for duty cycle in ON-OFF control method?	L1	CO5	PO1
3		What is meant by cyclo-converter?	L1	CO5	PO1
4		What are the disadvantages of continuous gating signal?	L1	CO5	PO1
5		What are the applications of phase controlled converter or ac voltage controllers?	L1	CO5	PO1
6		What are the types of ac voltage controller?	L1	CO5	PO1
7		What are the two types of cyclo-converters?	L1	CO5	PO1
8		What is meant by step-up and step down cyclo-converters?	L1	CO5	PO1
9		What is meant by positive converter group in a cyclo converter?	L1	CO5	PO1
10		What are the applications of cyclo-converter	L1	CO5	PO1
Part – B (Long Answer Questions)					
11	a)	Explain the operation of 1- φ AC voltage controller with RL load.	L1	CO5	PO1
	b)	Explain the operation of 1ϕ to 1ϕ step up cyclo converter with power circuit and waveforms.	L1	CO5	PO1
12	a)	Explain the operation of 1ϕ to 1ϕ step down cyclo converter with power circuit and waveforms.	L1	CO5	PO1
	b)	A 1- φ sinusoidal AC voltage controller has input voltage 230v,	L2	CO5	PO1,

		50Hz and a load of R=15Ω. For 6 cycles ON and 4 cycles OFF determine. i) rms output voltage ii) input PF iii) avg & rms thyristor currents.			PO2
13	a)	Describe the operation of single phase ac voltage controller with the help of voltage and current waveform. Also derive the expression for average value of the output voltage.	L1	CO5	PO1
	b)	Explain the operation of 1- φ AC voltage controller with R load.	L1	CO5	PO1
14	a)	A resistive load of 5Ω is fed through a 1ϕ full wave AC voltage controller from 230v, 50Hz source. If firing angle of thyristor is 120 degree. Find the rms output voltage, input power factor and average current of thyristor.	L1	CO5	PO1
	b)	Explain the operation of 1ϕ to 1ϕ step up cyclo converter with power circuit and waveforms.	L1	CO5	PO1
15	a)	A 1- φ sinusoidal AC voltage controller has input voltage 230v, 50Hz and its feeding resistive load of 10ohms .if firing angle of thyristor is 110 degree. Find i) rms output voltage ii) input PF iii) avg & rms thyristor currents	L1	CO5	PO1
	b)	Explain the operation of TRIAC with the help of neat structural diagram and suitable wave forms.	L1	CO5	PO1
16	a)	Discuss in detail the static and switching characteristic of TRIAC	L1	CO5	PO1
	b)	Explain the operation of 1ϕ to 1ϕ step down cyclo converter with power circuit and waveforms.	L1	CO5	PO1