



Shree Sathyam College of Engineering and Technology

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.
NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.
Email : principal@shreesathyam.edu.in Web : www.shreesathyam.edu.in Phone : 04283 - 244080

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

EE3701-HIGH VOLTAGE ENGINEERING

IMPORTANT QUESTIONS BANK

UNIT -1					
PART A		CO	BL	PO	PI
1.	What is the purpose of using driver circuit?	CO1	L2	PO2	2.1.2
2.	What is switching power loss?	CO1	L1	PO1	1.2.1
3.	Define thermal resistance and give its unit	CO1	L1	PO1	1.2.1
4.	Compare resonant converters with hard switched converters.	CO1	L2	PO1	1.3.1
5	Define the threshold gate voltage of power MOSFET.	CO1	L2	PO1	1.3.1
6	Define the term pinch	CO1	L2	PO1	1.3.1
UNIT -II					
1	Draw the equivalent circuit for IGBT.	CO2	L2	PO1	1.3.1
2	Define space vector modulation.	CO2	L2	PO1	1.3.1
3	List and define the different time durations associated with dynamic characteristics of IGBT.	CO2	L2	PO1	1.3.1
4	State the objective of selective harmonic distortion in converters.	CO2	L2	PO2	2.1.2
5	Define modulation index.	CO2	L1	PO1	1.2.1
6	State advantage of IGBT over MOSFET	CO2	L1	PO1	1.2.1
UNIT -III.					
1	Snubber circuit for an SCR should primarily consist of a capacitor only, But in actual practice, a resistor is used in series with capacitor- Interpret	CO3	L2	PO2	2.1.2
2	What is bridge rectifier?	CO3	L1	PO1	1.2.1
3	Define distortion factor.	CO3	L1	PO1	1.2.1



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4	Draw the LC filter and mention its corner frequency.	CO3	L2	PO2	2.1.2
5	Draw the very common Snubber circuit for a power diode	CO3	L2	PO2	2.1.2
6	For the single phase bridge rectifier, what is the output voltage if supply voltage is 230 v rms	CO3	L1	PO1	1.2.1
7	What is the purpose of doubler rectifier circuit	CO3	L1	PO1	1.2.1
8	What are the applications of diode rectifiers?	CO3	L2	PO2	2.1.2
9	Define Displacement power factor or displacement factor?	CO3	L1	PO1	1.2.1

UNIT IV

1	What is freewheeling diode, and what is its purpose? State its advantages.	CO4	L2	PO2	2.1.2
2	List various applications of phase controlled converters?	CO4	L1	PO1	1.2.1
3	What are the advantages of three phases converter over single phase converter?	CO4	L1	PO1	1.2.1
4	What is overlap angle? (Or) What is the effect of source inductance?	CO4	L2	PO2	2.1.2
5	Write the necessity for thermal protection in converters.	CO4	L1	PO1	1.2.1
6	Define Harmonic factor. (or) Total Harmonic Distortion Factor.	CO4	L1	PO1	1.2.1
7	Define distortion factor.	CO4	L2	PO2	2.1.2
8	Voltage Ripple factor	CO4	L1	PO1	1.2.1
9	Transformer Utilization factor.	CO4	L1	PO1	1.2.1

UNIT V

1	What are the two types of ac voltage controllers? Which one of these is preferred and why?	CO5	L2	PO2	2.1.2
2	List the merits and demerits of ac voltage controller?	CO5	L1	PO1	1.2.1
3	What are the effects of load inductance on the performance of ac voltage controllers?	CO5	L1	PO1	1.2.1
4	What is an ac voltage controller?	CO5	L2	PO2	2.1.2
5	Give any two important applications of AC voltage controller?	CO5	L1	PO1	1.2.1
6	What is triac?	CO5	L1	PO2	2.1.2
7	What are the applications of triac?	CO5	L2	PO2	2.1.2



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PART B					
UNIT –I					
1	With the help of circuit diagram and waveform explain the working of boost converter.	CO	BL	PO	PI
2	Describe the following characteristics of MOSFET. (i) Steady state characteristics. (ii) Switching characteristics.	CO1	L2	PO1	1.3.1
3	Explain the basic step down converter with the help of circuit diagram and waveform.	CO1	L1	PO2	2.1.2
4	Explain the operation of parallel loaded half bridge resonant dc- dc converter with neat diagram.	CO1	L1	PO2	2.1.3
5	Explain with neat diagram the classifications of resonant converter.	CO1	L2	PO1	1.3.1
UNIT-II					
1	Discuss with neat diagram the behavior of IGBT. Static behavior. Dynamic behavior.	CO2	L2	PO1	1.3.1
2	Discuss in detail with neat diagram about the programmed harmonic elimination switching technique.	CO2	L1	PO2	2.1.2
3	Explain the schematic of standard three phase VSI based topology inverter.	CO2	L1	PO2	2.1.3
4	Explain the operation of single phase half bridge inverter with suitable diagram also describes the carrier based sinusoidal PWM scheme with necessary waveforms.	CO2	L2	PO1	1.3.1
UNIT-III					
1	With sketches and derivations compare the output performance of single phase half wave and full wave rectifier.	CO3	L2	PO1	1.3.1
2	Discuss in detail with neat diagram the effect of current commutation in three phase full bridge rectifier and the principle of operation of voltage doubler circuit.	CO3	L2	PO2	2.1.2



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3	Draw and explain the working principle of Voltage doubler (single phase rectifiers).	CO3	L1	PO1	1.2.1
4	Explain the concern and remedies for line current harmonics and low power factor.	CO3	L1	PO1	1.2.1
UNIT -IV					
1	Explain the two transistor behavior model of a thyristor along with thermal protection with neat sketch.	CO4	L2	PO1	1.3.1
2	Explain the operation of single phase full wave midpoint converter with suitable sketch and waveforms.	CO4	L2	PO2	2.1.2
3	Describe the working of 3 phase fully controlled bridge converter in the rectifying and inverting mode, and derive the expression for average output voltage.	CO4	L1	PO1	1.2.1
4	Describe the effect of source inductance on (i) Single phase converter (ii) Three phase converter	CO4	L1	PO1	1.2.1
5	Explain the operation of single phase fully controlled bridge converter with RL load	CO4	L2	PO1	1.3.1
UNIT V					
1	With neat sketches explain the operation of TRIAC. Also discuss about the VI characteristics of TRIAC	CO5	L2	PO1	1.3.1
2	Explain the operation single phase Ac voltage controller with uni directional and Bidirectional mode.	CO5	L2	PO1	1.3.1
3	Explain the operation of 1 phase Ac voltage controller for RL load with the help of circuit diagram and wave forms.	CO5	L2	PO1	1.2.1
4	Explain the operation of 3 phase full wave controller with the help of circuit diagram and wave forms.	CO5	L2	PO1	1.2.1

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