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Unit - I**Chapter 2 : Thyristor Family Devices 2-1 to 2-41**

Syllabus : SCR : Construction, Operating principle with two transistor analogy, V-I characteristics, Latching current (I_L) and holding current (I_H). Applications of SCR. Thyristor family devices : LASCR, SCS, GTO and TRIAC : Power MOSFET and IGBT : Construction, Operating principle, V-I characteristics and applications.

Triggering devices : UJT, PUT, SUS, SBS and DIAC : Construction, Operating principle, V-I characteristics and applications.

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Unit - II**Chapter 3 : Turn On Methods of SCR 3-1 to 3-18**

Syllabus : Concept of Turn ON mechanism of SCR : High voltage thermal triggering, Illumination triggering, dv/dt triggering, Gate triggering of SCR, Gate trigger circuits – Resistance triggering circuit, Resistance, Capacitance triggering circuit, SCR triggering methods : UJT, PUT - Relaxation oscillator circuit, Synchronized UJT triggering circuit, Pulse transformer used in triggering circuit and optocoupler (MCT2E).

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Unit - II**Chapter 4 : Turn Off Methods and Protection Circuits of SCR 4-1 to 4-17**

Syllabus : Turn OFF methods - Class A, Series resonant commutation circuit, Class B-Shunt resonant commutation circuit, Class C-Complementary Symmetry commutation circuit. Protection circuits of SCR : Over voltage, over current, Snubber circuit and crowbar.

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Unit - III

Chapter 5 : Phase Controlled Rectifiers 5-1 to 5-29

Syllabus : Phase control parameters : Firing angle (α) and conduction angle (ϕ), Single phase half wave controlled rectifier : Circuit diagram, Working and waveforms with R and RL load, Effect of freewheeling diode with RL load, Single phase center tapped full wave controlled rectifier : Circuit diagram, Working and waveforms with R and RL load, Effect of freewheeling diode with RL load, Basic three phase half wave controlled rectifier.

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Unit - IV

Chapter 6 : Choppers and Inverters 6-1 to 6-20

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Unit - V

Chapter 7 : Industrial Control Circuits **7-1 to 7-17**

Syllabus : Light dimmer circuit using DIAC - TRIAC, Battery charger using SCR, Emergency lighting system, Temperature controller using SCR, Block diagram and concept of UPS (On line and off line), Block diagram and concept of SMPS.

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