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).

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.

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.

Syllabus : Converters and its types, Block diagram and working of step up and step down choppers using power MOSFET, Inverters : Circuit diagram, Working of series, Parallel inverters.

Unit - V

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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