

- g. In a half-wave dipole radiator, total length of the two wires is
(A) Full wavelength (B) Half wavelength
(C) Integral multiple of wavelength (D) Not important
- h. Which terminal does not belong to the SCR?
(A) Anode (B) Gate
(C) Base (D) Cathode
- i. A latched up IGBT can be turned off by
(A) Forced commutation of current
(B) Forced commutation of voltage
(C) Use of a snubber circuit
(D) None of the mentioned
- j. The major advantage of using dual converters is that
(A) It is cheaply available
(B) It has better pf
(C) No mechanical switch is required to change the mode of operation
(D) Its operating frequency is very high

Answer any FIVE Questions out of EIGHT Questions.

Each question carries 16 marks.

- Q.2** a. What are the different types of power diodes? (8)
- b. If two diodes are connected in series with equal voltage sharing, why do the diode leakage current is different? Explain. (8)
- Q.3** a. Explain the switching characteristics of an IGBT. (8)
- b. Why power losses in real switches? How this can be mitigated? (8)
- Q.4** a. Explain dv/dt triggering of thyristor. (8)
- b. Explain two transistor model of a thyristor. (8)
- Q.5** a. With the help of circuit diagram and waveforms, explain single phase half wave circuit with RL load. (8)
- b. A single phase 230V, 1kW heater is connected across a 1 phase 230V 50 Hz supply through an SCR. For the firing angle delays of 45° , calculate the power absorbed in heater. (8)
- Q.6** a. For a three phase half wave mode rectifier derive an expression for the average output voltage V_o in terms of maximum value of source voltage from line to neutral. (8)
- b. Explain the working principle of three phase half wave controlled rectifier. (8)

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- Q.7** a. What is the principle of operation of DC chopper? Also mention its types and give its applications. (8)
- b. Design a basic series resonant inverter and explain it. (8)
- Q.8** a. Explain total Harmonic distortion (THD) and distortion factor (μ). (8)
- b. Draw the circuit and waveforms of single phase half bridge inverter and signal phase full bridge inverter. (8)
- Q.9** Write short note on the following:
- a. Principle of cyclo-converter (8)
- b. Static-Top charging Control. (8)