

- h) Explain the voltage control of 3-phase inverter by sinusoidal PWM scheme.
- i) An RLE load is operating in a chopper circuit from a 500-volt dc source. For the load, $L=0.06\text{H}$, $R=0$ and constant E . For a duty cycle of 0.2, find the chopping frequency to limit the amplitude of load current excursion to 10A.
- j) A single-phase full-wave ac voltage controller feeds a load of $R=20\ \Omega$ with an input voltage of 230V, 50 Hz. Firing angle of both the thyristor is 45° . Calculate (a) rms value of output voltage (b) load power and (C) input power factor.
- k) Explain the principle and operation of single-phase mid-point type step-up cycloconverter.
- l) Explain the operation of current source inverter with neat sketch diagram and waveforms.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

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| Q3 | Draw and Explain in details three-phase 180° mode of VSI. | (16) |
| Q4 | Explain the applications of UPS, SMPS, Battery Chargers and SVC. | (16) |
| Q5 | Discuss the switching characteristics of an SCR during turn ON and turn OFF with neat sketch waveform. | (16) |
| Q6 | Discuss the operation of Fly Back converter and Push Pull Converter with neat sketch diagram and waveforms. | (16) |