KARPAGAM COLLEGE OF ENGINEERING, COIMBATORE -641032.
BE-ELECTRICAL AND ELECTRONICS ENGINEERING
12E605 POWER ELECTRONICS
Continuous Internal Assessment: II (Re-Test)

PART-A

Answer ALL Questions

1. Differentiate Controlled rectifier and Uncontrolled rectifier.
2. Write the range of firing angle and extinction angle in fully controlled rectifier.
3. Compare constant frequency control with variable frequency control.
4. Determine the output voltage of boost converter with 20% duty cycle fed from an 80V DC source.
5. Draw the circuit diagram of Cuk converter.

Part-B

B1. a) (i) Explain the operation of single phase fully controlled thyristor bridge rectifier with RL Load. (6)

(ii) Derive an expression for average dc load voltage, load current, RMS voltage and RMS current of single phase full-converter with RL load. (5)

(iii) Compare half controlled rectifier with fully controlled rectifier. (4)

OR

b) (i) Draw the circuit diagram of buck-boost converter and explain its operation with equivalent circuit for different modes and waveforms. (6)

(ii) The buck-boost regulator has an input voltage of 12 v. The duty cycle is 0.25 and the switching frequency is 25 kHz. The inductance L=150H and filter capacitance c=220F. the average load current is 1.25 A. Determine a) the average output voltage, b) the peak to peak output voltage ripple, c) the peak to peak output current ripple. (5)

(iii) Derive the output voltage equation, peak to peak ripple current of inductor, peak to peak