

T.E. SEM VI / INST / CBGS / MAY 2017

Q.P. Code :13025

[3 Hours]

[Total Marks: 80]

- N.B.
1. Question no.1 is compulsory.
 2. Solve **any three** from the remaining.
 3. Assume data wherever necessary.



1. Solve the following questions. [20]
 - a) Define holding current and latching current of SCR.
 - b) Explain the function of freewheeling diode.
 - c) List out the applications of choppers and SMPS.
 - d) Draw and explain fan regulator.
 - e) Explain RC snubber circuit.

2.
 - a) Explain 1 ϕ full controlled rectifier with inverting and rectifying mode. [10]
 - b) Explain boost converter with neat waveforms. [10]

3.
 - a) Explain parallel inverter with neat waveforms. [10]
 - b) A full wave controlled rectifier with an inductive load is connected to a 120V source. The resistive portion of the load is equal to 10Ω . If the delay angle α is 30° , find: [10]
 1. The average voltage,
 2. avg. current,
 3. max load current,
 4. rms load current,
 5. The avg. current in each scr.
 6. The power supplied to the load.
 7. Form factor
 8. Ripple factor
 9. Efficiency.

4.
 - a) Explain dielectric heating with example. [10]
 - b) Explain Non Punch through IGBT. [10]

5.
 - a) What are the different PWM techniques? Explain with neat waveforms. [10]
 - b) Explain variable frequency speed control for AC drive. [10]

6.
 - a) Differentiate between full converter and semiconverter and explain asymmetric semiconverter. [10]
 - b) Explain Jones Chopper with neat waveform. [10]