T.E(Instru) Sem-VI
CBGS

26/11/18
1/1

[3 Hours] [Total Marks: 80]

NB. Q.1 is Compulsory.
Solve any three questions from the remaining
Assume suitable data if required and justify it.

Q.1 Solve the following 20
a) Explain dynamic characteristics of SCR.
b) Write advantages of IGBT and MOSFET
c) Explain need of synchronizing circuit in converters
d) Explain the effect of source inductance

Q.2 a) What is the difference between series and parallel inverter? Explain the working of series inverter. 10
b) Explain the current fed ac drives & state its applications

Q.3 a) With the help of a neat diagram and associated waveforms discuss the operation of Buck-Boost converter. Also list the advantages and disadvantages of this type of converter. 10
b) Explain variable frequency I.M. drive 10

Q.4 a) Describe the working of 1phase fully controliedbridge with RL load. 10
b) What are the different PWM techniques. Explain with neat waveforms 10

Q.5 a) Explain the induction heating process with examples. 10
b) Explain Step-up chopper with neat waveforms. 10

Q.6 a) Design a dc power control circuit for input of 250V, 50 Hz, ac supply using SCRs and UJT trigger circuits for following requirements. 20
Dc output voltage variable= 75 to 110 V
Load resistance =10Ω
The minimum supply voltage used for trigger circuit with temperature compensation is

Cμf	0.07	0.1	0.2	0.3
V_{BB}	18	16	14	13

UJT specifications are
η_{min} =0.56 η_{max} =0.75 V_{BBmax}= 35V
I_p= 5μA I_v = 4mA V_v= 2V