Total No. of Questions : 6]

SEAT No. :

P5080

[Total No. of Pages : 2

T.E./Insem.-628
T.E. (Electrical)
POWER ELECTRONICS
(2015 Pattern)

Time : 1 Hour] *[Max. Marks : 30*

Instructions to the candidates:

1) ***Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Use of calculator is allowed.***
5) ***Assume suitable data if necessary.***

Q1) a) Describe the different modes of operation of SCR with the help of V-I characteristic. **[5]**

b) Explain the following specifications of the thyristor. **[5]**

i) dv/dt.

ii) di/dt.

iii) I^2t.

OR

Q2) a) Explain the full wave R-C triggering circuit of Thyristor with the help of neat circuit diagram and output waveforms. **[6]**

b) Why is the reverse breakdown voltage greater than the forward breakdown voltage in SCR? **[4]**

Q3) a) Draw and explain the switching characteristics of IGBT. **[5]**

b) What is duty cycle of chopper and explain PWM & FM techniques of voltage control. **[5]**

OR

P.T.O.

Q4) a) Compare between Power MOSFET and BJT. **[4]**

b) Write short note on Class E Chopper. **[6]**

Q5) a) Explain the working of single phase semi converter bridge with RL load. Derive the expression for output voltage. **[5]**

b) With neat diagram explain the concept of overlap angle. Write formula to calculate voltage drop due to overlap. **[5]**

OR

Q6) a) Write short note on single phase dual converter. **[5]**

b) Derive expression for average output voltage and rms output voltage of a single phase fully controlled bridge converter with RL load (Assume continuous conduction). **[5]**