Total No. of Questions : 6]

SEAT No. :

P5640

[Total No. of Pages : 2

TE/INSEM./OCT.-28
T.E. (Electrical)
POWER ELECTRONICS
(2012 Course) (303143) (Semester - I)

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

Instructions to the candidates:

1) ***Answer Q1 or Q2, Q3 or Q4, Q5 or Q6.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data, if necessary.***

UNIT - I

Q1) a) Compare the characteristics of an Ideal switch with Practical switch characteristics. **[5]**

b) Explain latching of SCR using two transistor analogy. How duration of gate pulse is decided? **[5]**

OR

Q2) a) Draw Dynamic characteristics of SCR and Explain turn on and turn off times. **[5]**

b) List various Protections used for SCR and Explain. **[5]**

UNIT - II

Q3) a) With help of a neat diagram and waveforms for output voltage and voltage across switch, explain the working of a single phase fully controlled bridge converter feeding RL load assuming continuous conduction. **[6]**

b) A single phase semi converter delivers power to RLE load with R = 5 ohm, L = 10mH and E = 80V. The ac supply voltage is 230V, 50Hz. For the continuous conduction, find the average value of output current for a firing angle of 50 deg. **[4]**

OR

Q4) a) With help of a neat diagram and waveforms explain the working of a single phase dual converter. **[5]**

b) A single phase full converter is supplied from 230 V, 50 Hz source having the source inductance of 0.1 mH. If average load current is 150 A. For a firing angle delay of 30 deg, find the average output voltage and the angle of overlap. **[5]**

P.T.O.

UNIT - III

Q5) a) For a three phase fully controlled bridge converter, derive average voltage expression for resistive load. What is the condition for continuous current. Draw the waveform. **[6]**

b) Explain four quadrant operation of TRIAC using neat diagram. **[4]**

OR

Q6) a) Explain working of single phase ac regulator feeding RL load. Draw output voltage waveform. **[5]**

b) A fully controlled 3 phase bridge converter is supplied from 200 V line voltage to feed highly inductive load with R = 10 ohm at firing angle of 45 degree. Calculate the average load voltage and average load current.**[5]**