Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

EX-504 (GS)

B.E. V Semester

Examination, December 2017

Grading System (GS)

Power Electronics Devices and Circuits

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Explain working of GTO with VI characteristics. 7
   b) Describe the different types of protection schemes for SCR. 7

2. a) Discuss the effect of source inductance on operation of single phase fully controlled rectifier. 7
   b) Draw the waveform of 3-phase controlled rectifier on RL load at 60° firing angle. 7

3. a) What are the difference between voltage source and current source inverter? Explain. 7
   b) Explain operation of 3-phase bridge inverter with 120° mode of operation. 7

4. a) Explain the various control strategies used for chopper circuits. 7
   b) Describe the working of class C chopper with neat and clean waveform. 7

5. a) Explain the single phase dual converter with proper diagram and different waveform. 7
   b) What kind of controller required for control of FAN? Explain with circuit diagram and waveform. 7

6. a) Discuss effect of free wheeling diode on the performance of 1-ϕ rectifiers. 7
   b) Explain UJT firing circuit for SCR with proper circuit diagram and waveform. 7

7. a) Explain two transistor analogy of SCR. Also describe the VI characteristics of SCR. 7
   b) What kind of switch required to design rectifier and why? Draw the symbol of 6 power electronics switches. 7

8. Write short notes on any two of the following: 14
   a) Buck-Boost chopper
   b) Harmonics elimination technique in inverter
   c) Class B Commutation

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