

1482**Code : 15EE51T**Register
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V Semester Diploma Examination, April/May-2018**POWER ELECTRONICS****Time : 3 Hours]****[Max. Marks : 100**

- Note :** (i) Answer any **six** questions from Part – A. Answer to each question carries **5** marks.
- (ii) Answer any **seven** questions from Part – B. Answer to each question carries **10** marks.

PART – A

1. Draw the structure of power MOSFET and list its applications. **5**
2. Explain the concept of two transistor analogy of SCR. **5**
3. Draw and explain general layout of firing circuit of SCR. **5**
4. Define reliability and M.J.B.F. of SCR. **5**
5. Draw the circuit of step-down chopper and explain its operation. **5**
6. List the difference between Voltage Source Inverter (VSI) and Current Source Inverter (CSI). **5**
7. List the sources and effects of power line disturbances. **5**
8. Draw the block diagram of static excitation of alternator and explain. **5**
9. Draw and explain SCR battery charger circuit for a 12 V battery. **5**

PART – B

10. (a) Draw the V.I. characteristics of TRIAC and list its applications. **5**
- (b) List the difference between MOSFET, BJT & IGBT. **5**

11. (a) Explain V.I. characteristics curve of SCR. 5
(b) Draw synchronised UJT pulse triggering circuit and explain with waveform. 5
12. (a) Draw R-C firing circuit and explain with waveform. 5
(b) Describe how SCR can be protected against dv/dt . 5
13. (a) Explain smart power modules. 5
(b) Explain the operation of stepdown chopper with a neat circuit diagram. 5
14. Draw the circuit of 3-phase 180° mode VSI and explain its operation with waveform. 10
15. (a) List the advantages and disadvantages of cycloconverters. 5
(b) List the applications of SMPS. 5
16. Describe the operation of relay type AC voltage stabiliser with the help of a neat circuit diagram. 10
17. Draw the block diagram and explain the operation of switch mode welder. 10
18. Explain speed control of D.C. shunt motor by armature voltage control method. 10
19. Explain speed control of Induction motor by variable voltage, frequency method. 10