Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (EE) (2012 Onwards) (Sem.–5)
B.Tech. (Electrical & Electronics Engg.) (2012 Onwards)
B.Tech. (Electrical Engineering & Industrial Control)/
(Electronics & Electrical Engg.) (2012 to 2017)

POWER ELECTRONICS

Subject Code : BTEE-504
M.Code : 70557

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Answer briefly :

1. What is the function of heatsink in SCRs?
2. What are the different methods to turn off the thyristor?
3. What are the applications of cycloconverter?
4. Define latching current.
5. Draw the circuit of snubber circuit.
6. Discuss the significance of freewheeling diode.
7. List various types of commutations.
8. Draw the symbol and characteristics of TRIAC.
9. What are line commutated inverters?
10. What is resistance firing circuit?

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SECTION-B

11. Describe the principle of dc chopper operation. Derive an expression for its average dc output voltage.

12. SCRs with a rating of 2000V and 200 A are available to be used in a string to handle 6KV and 2 KA. Calculate the number of series and parallel units required in case of derating factor is 0.1 and 0.2.

13. What do you mean by commutation? Discuss class C and class D commutation with circuit diagram and waveforms.

14. What is the use of AC voltage controller? Discuss the single-phase AC voltage controller with RL load.

15. What is the use of cycloconverter? Discuss three phase to single phase cycloconverter with waveforms.

SECTION-C

16. Draw and explain single phase voltage source bridge inverter. Also give its steady state analysis.

17. Draw and explain the static and dynamic characteristics of Silicon controlled rectifier.

18. What do you mean by phase control rectifier? Draw and explain the voltage waveforms for three phase full converter. Also give the expressions for output voltage.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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