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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (EE) PT (Sem.-6)

POWER ELECTRONICS

Subject Code : BTEE-504

M.Code : 72789

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. Draw the Symbol and characteristics of TRIAC.
2. Explain the need of snubber circuit.
3. Differentiate between forced and natural commutation.
4. Compare voltage and current source inverters.
5. Explain the importance of phase angle control.
6. Which of the DC choppers is more commonly employed and why?
7. Explain the operating principle of an Inverter.
8. List the advantages and disadvantages of cyclo converters.
9. What do you mean by harmonics? Explain.
10. Differentiate between AC link chopper and DC chopper.

SECTION-B

11. Define string efficiency for two series/parallel connected SCRs. Show that the string efficiency for two series connected SCRs is usually less than one.
12. A step up chopper has input voltage of 220 V and output voltage of 660V. If the conducting time of the chopper is 100 micro second, compute the pulse width of the output voltage. In case output voltage pulse width is halved for constant frequency operation, find the average value of the new output voltage.
13. Explain the operating principle of single phase to single-phase step down cyclo converter.
14. Discuss, with the relevant waveforms, Class B type of commutation employed for thyristor circuits.
15. Discuss the various voltage control methods in single phase inverters in detail.

SECTION-C

16. Explain the static VI characteristics of a thyristor. List various triggering methods of the thyristor and explain gate triggering and dv/dt triggering.
17.
 - a) What is the purpose of a chopper? Discuss in detail the basic principle of operation of choppers.
 - b) Why is Dual converter required? Explain the working of an ideal dual converter.
18. Discuss :
 - a) Line Commutation
 - b) Series inverter

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.