

Roll No.

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Total No. of Pages : 02

Total No. of Questions : 09

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**1. Answer briefly :**

- a. Define latching and holding current of a thyristor.
- b. What do you understand by PIV rating of a thyristor?
- c. What is a snubber and why is it used?
- d. What is phase control in a thyristor?
- e. What is the purpose of a chopper?
- f. What is feedback diode and where is it used?
- g. What is di/dt and dv/dt ratings of a thyristor?
- h. Why and where the zener diode is used for thyristors?
- i. Can a converter be used as an Inverter? If yes how and if no why?
- j. Differentiate between SUS and SCS.

SECTION-B

2. Discuss the transient characteristics of a thyristor and explain various terms used in it.
3. Differentiate between line and load commutations of a thyristor.
4. Explain the operation of a current commutated chopper with the help of its waveforms.
5. Explain the operation of a single-phase bridge inverter with the help of circuit diagram and associated waveforms.
6. Discuss the PWM control for reduction of harmonics in the inverter output voltage.

SECTION-C

7. Discuss the need of static and dynamic equalization for the series and parallel operation of thyristors? Also discuss various protection circuits used for thyristors.
8. Draw the circuit diagram of a three-phase bridge converter and explain its operation with the help of various waveforms.
9. Write short note on **any of two** :
 - a. Single phase bridge cyclo-converter.
 - b. Modified Mc-Murray Half bridge Inverter.
 - c. Classification of choppers.

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.