

**Roll No.**

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**Total No. of Pages : 02**

**Total No. of Questions : 09**

**B.Tech. (EE) (Sem.-5)**  
**POWER ELECTRONICS**

**Subject Code : EE-309**

**M.Code : 57026**

**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. Write briefly :**
- a) What is TRIAC?
  - b) What is holding current?
  - c) What do you mean by  $dv/dt$  triggering?
  - d) What is load commutation?
  - e) What is the need of a chopper?
  - f) List the advantages and disadvantages of cycloconverters.
  - g) Discuss the need of an Inverter.
  - h) What do you mean by PWM control?
  - i) What do you mean by steady state analysis? Discuss.
  - j) Explain the importance of phase angle control.

## SECTION-B

2. Explain the operation of a SCR with the help of its static VI characteristics.
3. Explain the operation of a Single phase half wave controlled rectifier.
4. Describe the working of class D commutation with relevant diagrams.
5. Explain the reduction of harmonics in the inverter output voltage using PWM.
6. Explain the basic circuit and operation of a single-phase cycloconverter.

## SECTION-C

7. Explain :
  - a) Series operation of SCR
  - b) Parallel operation of SCR
8. Explain :
  - a) Class B commutation
  - b) Two quadrant chopper
9. Discuss :
  - a) Series inverter
  - b) Dual Converter

**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.**