

Seat No. **OCT-NOV 2025 WINTER EXAMINATION****1154 B.Tech. CBCS****Sub. Name: Power Electronics****Sub. Code: 81648/81858****Day and Date: Saturday ,13-12-2025****Total Marks: 70****Time: 10:30 AM To 01:00 PM**

- Instructions:**
1. All questions are compulsory
  2. Draw neat labelled diagrams wherever necessary
  3. Figures to the right indicate full marks
  4. Use of Scientific calculator is allowed

**Q1) Solve following MCQ.****[14]**

- i.** Inverter convertss
  - A. DC to AC
  - B. AC to DC
  - C. DC to DC
  - D. AC to AC
- ii.** In series connected thyristors
  - A. L is used for tuning out junction capacitance
  - B. L & C is used for filtering out the ripple
  - C. R,C is called Snubber circuit
  - D. L is intended to increase di/dt at switch on
- iii.** A Resistor connected across the gate and cathode of thyristor increase its
  - A. Turn off time
  - B. di/dt rating
  - C. Noise immunity
  - D. holding current
- iv.** If the firing angle in an SCR rectifier is decreased ,the output is
  - A. Increased
  - B. Maxmium
  - C. Decreased
  - D. Remain Unaffected
- v.** The Inverter can be classified as
  - A. Voltage Source Inverter
  - B. Current Source Inverter
  - C. Both 1 and 2
  - D. Power Inverter
- vi.** In the current limit control method,when the load current reaches a predefined

lower value, then

- A. the chopper is switched off
- B. the chopper is switched on
- C. the source voltage is removed
- D. load voltage goes to zero

vii. A device that cannot be triggered with low voltage of either polarity is

- A. Diac
- B. Triac
- C. SCS
- D. All of the above

**Q2)** Solve Any two Questions below. **[14]**

- a. If the half wave controlled rectifier has purely resistive load of R and delay angle is  $\alpha = \pi/3$ . Determine A -Rectification efficiency, B-Form Factor, C Ripple factor, D-TUF **[7]**
- b. Draw and explain V-I Characteristics of IGBT. **[7]**
- c. Explain Half controlled rectifier with R-L load along with wave form. **[7]**

**Q3)** Solve Any Two Questions below. **[14]**

- a. Draw and explain V-I characteristics Of Triac. **[7]**
- b. List the turn on method of SCR and Explain any one of it. **[7]**
- c. With Neat sketch explain V-I Characteristics of SCR **[7]**

**Q4)** Solve Any Two Questions below **[14]**

- a. What are the types of Inverter. Explain the different performance parameters of Inverter. **[7]**
- b. Explain Basic principle of chopper. **[7]**
- c. Explain Non-drive applications using induction heating with circuit diagram. **[7]**

**Q5)** Solve Any Two Questions below **[14]**

- a. Explain Uninterrupted Power supply with circuit diagram **[7]**
- b. How choppers are classified. Explain the classification in detail **[7]**
- c. Explain the single phase full bridge inverter with R-L load **[7]**

## **End Of Question Paper**

**Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -**

This Question Paper may be distributed for following Subjects as common code.

सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

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