

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (Electronics and Electrical Engineering) (Sem.-4)

**POWER ELECTRONICS**

Subject Code : BTEEE-403-18

M.Code : 77576

Date of Examination : 07-07-22

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 Thyristor?
- b) Draw characteristics of IGBT.
- c) What do you mean by firing?
- d) What is the difference between diode and SCR?
- e) What do you understand from harmonics?
- f) What is the principle of working of buck converter?
- g) What is latching current?
- h) What is commutation?
- i) What is inverter?
- j) What is the difference between MOSFET and IGBT?

## SECTION-B

2. What is the principle of commutation of thyristor? Explain voltage and current commutation of thyristor?
3. What are the thyristor ? Explain the VI characteristics of thyristor and diode with neat diagrams diagram.
4. How does the rectifier works? Discuss the working of single phase full bridge rectifier with resistive load.
5. What are the advantages and disadvantages of converters? Where they are used? How does the power circuit of boost converter works, explain?
6. What is modulation index? Discuss the unipolar sinusoidal modulation.

## SECTION-C

7. Explain the working of SCR? What is the significance of the firing? Explain the firing circuits and discuss their working.
8. Differentiate the working of single phase and three phase rectifier circuits with resistive loads with neat circuit and waveforms diagrams.
9. a) What is chopper? Discuss the working of chopper with active switch and diode.  
b) Explain the Square wave operation of 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.**