

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (OLD) EXAMINATION – SUMMER 2019****Subject Code: 172403****Date: 16/05/2019****Subject Name: Power Processing Circuits - II****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Describe operation of Mc murray –Bedford inverter. **07**
(b) Discuss the different PWM technique. **07**
- Q.2** (a) Draw and explain basic series inverter. What are its limitations? **07**
(b) Explain the space vector modulation technique for the control of an inverter output. **07**
- OR**
- (b) Why multi-level inverter is required? Describe basic operation of same. **07**
- Q.3** (a) Explain 120° mode operation of three-phase inverter with circuit diagram and waveforms. **07**
(b) Compare ZVS and ZCS. **07**
- OR**
- Q.3** (a) Explain 180° mode operation of three-phase inverter with circuit diagram and waveforms. **07**
(b) Explain the Fourier analysis of a square wave inverter and thus derive the THD in the output voltage waveform. **07**
- Q.4** (a) Explain the external control of ac output voltage of an inverter. **07**
(b) Draw the block diagram of on-line UPS. Explain each block in brief. **07**
- OR**
- Q.4** (a) What are the transformer tap changers? **07**
(b) Draw the block diagram of off-line UPS. Explain each block in brief. **07**
- Q.5** (a) Write short note on: Active front-end rectifier. **07**
(b) Explain the single-phase bidirectional controller having RL load with neat waveforms. **07**
- OR**
- Q.5** (a) Discuss Triplen harmonic injection technique for inverter control. **07**
(b) Explain cascaded H – bridge multi-level inverter in brief. **07**
