

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI(OLD) – EXAMINATION – SUMMER 2019

Subject Code:160902

Date:29/05/2019

Subject Name: Power Electronics - II

Time:10:30 AM TO 01:00 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) Explain single phase half bridge topology of inverter with Resistive load. **07**
(b) Describe the basic principle of operation of a single phase to single phase bridge type cycloconverter for continuous conduction. **07**
- Q.2** (a) Explain the working of three phase inverter for 180 degree mode with waveforms and all necessary equation **07**
(b) Draw the power circuit of a series inverter and discuss its operation with all necessary waveforms. **07**
- OR**
- (b) Explain single phase current source inverter with waveform. **07**
- Q.3** (a) Explain Sine wave PWM technique. What is the effect of modulation index on output? Explain its merit and demerit. **07**
(b) Explain in brief: Matrix Converter. **07**
- OR**
- Q.3** (a) Explain 120 degree mode of operation for three phase bridge inverter with resistive load. **07**
(b) Explain principle of integral cycle control for AC voltage controller. **07**
- Q.4** (a) Explain single phase full-wave AC controller with R load. **07**
(b) Explain static Kramer system for slip power recovery. **07**
- OR**
- Q.4** (a) Explain the operation of static DC circuit breaker. **07**
(b) Enlist various speed control methods for Induction machine. Explain V/f control scheme with basic block diagram. **07**
- Q.5** (a) Write a brief note on 1 phase AC voltage controller with PWM control with necessary waveforms. **07**
(b) What are the merits of HVDC? Explain working of HVDC with regards to power electronics. **07**
- OR**
- Q.5** (a) List various FACT's devices and explain any one in brief. **07**
(b) Explain rotor resistive control for induction motor using power electronics device. **07**
