

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- VIIth SEMESTER-EXAMINATION – MAY/JUNE- 2012****Subject code: 172403****Date: 09/06/2012****Subject Name: Power Processing Circuits II****Time: 02:30 pm – 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) Explain the battery charging process and Ampere-Hour calculation for battery. **07**
(b) Explain ON-Line and OFF-Line UPS with block diagram. **07**

- Q.2** (a) Draw the schematic of active front-end rectifier. List its advantages and applications. **07**
(b) List the performance parameters of inverter. Explain the working of single-phase full-bridge inverter with circuit diagram and waveforms. **07**

OR

- (b) Explain the working principle of single-phase half-bridge inverter with circuit diagram and waveforms. List domestic and industrial applications of inverters. **07**

- Q.3** (a) Explain the current source inverter with circuit diagram and waveforms. **07**
(b) Explain the 120° conduction mode of three-phase inverter with circuit diagram and waveforms. **07**

OR

- Q.3** (a) Explain the modified Mc-Murray half-bridge inverter with circuit diagram and waveforms. **07**
(b) Explain the working of three-phase series inverter with neat circuit diagram. **07**

- Q.4** (a) Explain zero-voltage switching resonant converter with circuit diagram and waveforms. **07**
(b) Explain the diode-clamped 5-level multilevel inverter with circuit diagram and waveforms. **07**

OR

- Q.4** (a) Explain features of multilevel inverter. List applications of multilevel inverter and explain any one in detail. **07**
(b) With the help of circuit diagram and waveforms explain the two-stage sequence control of ac voltage controllers with R and RL load. **07**

- Q.5** (a) Explain the working of three-phase to single-phase cycloconverter with circuit diagram and waveforms. **07**
(b) Explain the Sinusoidal PWM technique of the voltage control of inverter with waveforms and equations. **07**

OR

- Q.5** (a) Explain the voltage control of inverter with output side control techniques. **07**
(b) Explain phase dead-banding with modulation reference waveforms. Explain triplen injection modulation. **07**
