

GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER – VI (OLD).EXAMINATION – WINTER 2016

Subject Code: 160902**Date: 27/10/2016****Subject Name: Power Electronics - II****Time: 02:30 AM 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) Explain in brief: Matrix Converter. **07**
 (b) Enlist various types of HVDC systems & discuss any one in brief. **07**
- Q.2** (a) Justify the statement: “Stator voltage control scheme is not suitable for constant load torque drive.” **07**
 (b) Compare Space Vector PWM technique with Sine PWM technique. **07**
- OR**
- (b) Enlist various PWM techniques & explain Selective Harmonic Elimination technique for elimination of 5th & 7th harmonics from output voltage. **07**
- Q.3** (a) With use of neat diagram & waveforms explain parallel inverter circuit. **07**
 (b) A 1-Phase half bridge inverter has a load $R=10\Omega$, & $V_{dc} = 48V$. Determine (1) $V_{O(RMS)}$ at Fundamental frequency, (2) O/P Power & (3) % THD **07**
- OR**
- Q.3** (a) A 3 – phase inverter has 180° conduction interval for its operation. Draw its circuit and state the conduction sequences of the switch with waveforms. **07**
 (b) Write a short note on Basic Kramer System. **07**
- Q.4** (a) Discuss on – off control based single phase AC voltage controller with necessary diagrams. **07**
 (b) Enlist various types of commutation circuits. Explain Load commutated cycloconverter circuit with necessary diagrams. **07**
- OR**
- Q.4** (a) Discuss application of AC Voltage controller as electronics transformer connection changer. **07**
 (b) Write a short note: 3 – Phase cycloconverter. **07**
- Q.5** (a) Explain the operation of a self-controlled synchronous motor drive fed from a cycloconverter. **07**
 (b) Enlist various speed control methods for Induction machine. Explain V/f control scheme with basic block diagram. **07**
- OR**
- Q.5** (a) Give comparison between AC & DC drives. Enlist different parameters, required for selection of drive at oil refinery. **07**
 (b) Discuss in brief requirement of slip power recovery scheme & derive equation for efficiency. **07**
