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GUJARAT TECHNOLOGICAL UNIVERSITY PDDC-SEMESTER V-• EXAMINATION - SUMMER - 2016

Subject Code: X50903 Date: 17/11/2016 **Subject Name: Power Electronics-II** Time: 10:30 AM to 1:00 PM **Total Marks: 70 Instructions:** 1. Attempt all questions. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. **Q.1** (a) List the commonly used PWM technique for voltage control of inverter. Explain 07 any one in details with neat waveform. Explain working of three phase voltage source inverter with 120 degree **(b)** 07 conduction. Draw Waveforms. Draw different configurations of three phase AC-AC Voltage controller. **Q.2** 07 (a) Write the difference between them. **(b)** Explain single phase AC-AC Controller (Regulator) with R-L Load. Derive 07 equation for Average and RMS output voltage. (b) Explain Third harmonic PWM in detail with output waveforms. 07 0.3 Explain effect of non sinusoidal supply voltage on AC motor operation. Also 07 (a) discuss principle of variable frequency control. Distinguish VSI and CSI and specify their applications. **07 (b)** OR **Q.3** (a) Compare on-off control & phase angle control of AC voltage controller. 07 Discuss Matrix converter in detail. 07 **(b)** 0.4 Explain v/f control of three phase induction motor. 07 (a) State the various points of comparisons and their choice/criterion for selection **(b)** 07 between AC and DC drives. OR Discuss closed loop control of induction motor. 07 0.4 (a) Explain self controlled synchronous motor drive. How it can be implemented? 07 **(b)** Explain Self controlled synchronous motor drive employing a Cycloconverter. 07 0.5 (a) Describe application of AC voltage controller as Transformer tape changer. **07 (b) Q.5** Explain Induction and RF heating in details. **07** (a) **(b)** Write a note in static VAR Compensators. 07
