

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2017

Subject Code: 2172402

Date: 02/11/2017

Subject Name: Industrial Drives & Control-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.

		MARKS
Q.1	(a) Discuss advantages of stator voltage control method for Constant load –torque.	03
	(b) Explain the any one application of AC Drives.	04
	(c) Explain the Modeling of induction machine in detail.	07
Q.2	(a) Enlist the application AC Drives & draw the block diagram of AC Drives.	03
	(b) Describe the analysis of Induction Motor with Unbalanced rotor impedances.	04
	(c) Draw and explain the thyristor configuration for a stator voltage controlled reversible-speed Induction Motor Drive. Also draw the speed-torque characteristics for a reversible induction motor drive.	07
	OR	
	(c) Enlist speed control methods for synchronous motor. Discuss adjustable frequency operation in brief.	07
Q.3	(a) Explain the principle behind the variation of the speed of a 3- Φ IM by v/f method for Operation below rated frequency.	03
	(b) Describe the analysis of Induction Motor with Non-sinusoidal voltage supply.	04
	(c) Explain the concept of direct vector control of Induction Motor Drive.	07
	OR	
Q.3	(a) Explain the Rotor resistance control for induction motor.	03
	(b) Explain the Transient analysis of Drives.	04
	(c) Discuss Principle of indirect vector control with necessary diagram.	07
Q.4	(a) Explain the torque slip characteristics for induction motor.	03
	(b) Explain the Principle of Vector control.	04
	(c) Explain the basic principle of DTFC for Voltage fed PWM inverter drives.	07
	OR	
Q.4	(a) Explain the concept of SRM Motor.	03
	(b) Compare CSI with VSI.	04
	(c) Discuss on Permanent Magnet AC Motor Drive.	07
Q.5	(a) Explain the Trapezoidal PMAC motor drives.	03
	(b) Explain CSI control for IM.	04
	(c) Discuss reference frame theory for induction motor in brief.	07

- Q.5** (a) Explain the in details of introduction to observer based Techniques in Induction Motor Drives. **03**
- (b) Explain the super synchronous speed operation for induction motor. **04**
- (c) Explain block diagram of feed-forward vector control for IM. **07**

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