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**

OR

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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