GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – VI (NEW).EXAMINATION – WINTER 2016

	•	Code: 2162404 Date: 22/10/2016 Name: Industrial Drives & Control-I	
Tir	-	0:30 AM to 01:00 PM Total Marks: 70	
	1. 2.	Attempt all questions.	
Q.1	(a) (b)	What is Electrical Drive? Explain its working along with block diagram. List Advantages & Disadvantages of DC Drive	07 07
Q.2	(a) (b)	Derive Torque equation of DC motor indicating Dynamics of Electrical Drive. Derive Transfer function of field controlled dc motor. OR	07 07
	(b)	Write a short note on Ward Leonard System.	07
Q.3	(a)	Draw & Explain waveforms of 1- Φ fully controlled converter with freewheeling diode for Separately Excited DC Motor.	07
	(b)	Explain three phase controlled converter with neat diagram. Also draw necessary waveforms.	07
Q.3	(a)	OR Explain multi-phase chopper circuit. Discuss its merits and demerit.	07
Q.C	(b)	Discuss four quadrant operation of DC – DC converter for separately excited DC Machine.	07
Q.4	(a)	Explain the need of PI control for DC drive system.	07
	(b)	Discuss circulating type dual converter with necessary diagram. OR	07
Q.4	(a)	Compare Dual converter with circulating and without circulating current.	07
	(b)	Explain two quadrant chopper circuit with neat diagram.	07
Q.5	(a)	Discuss closed loop speed control of DC motor. Why current loop is to be Introduced as an inner loop in closed loop operation.	07
	(b)	Write short note on PLL based DC drive.	07
Q.5	(a) (b)	OR Explain Micro computer control of DC Drives using block Diagram. Write short note on permanent magnet dc motor drive	07 07
