Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– VI (New) EXAMINATION – WINTER 2019

Subject Code: 2162003 **Date: 04/12/2019**

Subject Name: Control of Electric Drives

Time: 02:30 PM 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.**

			Marks
Q.1	**(a)**	What is power modulator? List out.	**03**
	(b)	What is electric drive? Draw block diagram.	**04**
	(c)	Describe the choice of electric drives.	**07**
Q.2	**(a)**	What is steady state stability?	**03**
	(b)	Derive fundamental torque equation for drive.	**04**
	(c)	Derive the mathematical model of separately excited DC machine.	**07**
		OR	
	(c)	Explain the four quadrant operation of electrical drive with example.	**07**
Q.3	**(a)**	Explain how to determine the moment of inertia of drive system.	**03**
	(b)	In snubber circuit why we use the resistor?	**04**
	(c)	Explain various PWM techniques for single phase inverter and three phase inverter.	**07**
		OR	
Q.3	**(a)**	List out turn on methods of thyristor.	**03**
	(b)	Describe single phase inverter in brief.	**04**
	(c)	Explain in brief various control strategies of a chopper.	**07**
Q.4	**(a)**	Define the terms: (1) latching current (2) holding current (3) circuit turn-off time.	**03**
	(b)	Explain the principle of phase control rectifiers.	**04**
	(c)	Explain the series operation of thyristor.	**07**
		OR	
Q.4	**(a)**	Give the classification of Choppers.	**03**
	(b)	How voltage control in single phase bridge inverter.	**04**
	(c)	Explain A.C. phase control of TRIAC using DIAC.	**07**
Q.5	**(a)**	Enlist methods of braking in DC motors.	**03**
	(b)	Explain transient analysis in DC motor drives.	**04**
	(c)	Give the comparison between various methods of braking in dc motors.	**07**
		OR	
Q.5	**(a)**	Explain any one speed control method of 3-phase induction motor in detail.	**03**
	(b)	Explain with necessary diagram 3-point starter using in dc motor.	**04**
	(c)	Explain the speed control method of 3-phase induction motor.	**07**