

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI(NEW) – EXAMINATION – SUMMER 2019

Subject Code:2160910

Date:21/05/2019

Subject Name:Electrical Drives

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) Draw block diagram of electric drive and give function of each block.	03
	(b) Explain drive parameter: 1) Loads with rotational motion. 2) Loads with translational motion.	04
	(c) What is electric drive? Give advantages of electrical drive.	07
Q.2	(a) Give advantages of PWM inverters.	03
	(b) Name the two methods to get variable dc from fixed ac source and explain any with circuit diagram.	04
	(c) What are the operating modes of three phase full converter with inductive load and explain any one.	07
	OR	
	(c) Explain Sinusoidal PWM techniques with suitable waveforms.	07
Q.3	(a) Write relative merits and demerits of VSI and CSI	03
	(b) Justify with proper reason: Speed torque characteristic of PMDC motor is superior to conventional DC motor.	04
	(c) Explain model referencing adaptive control	07
	OR	
Q.3	(a) What is Sliding mode control? State its advantages.	03
	(b) Explain Flux control method for speed control of DC shunt motor	04
	(c) Explain the dynamic model of dc motor drive.	07
Q.4	(a) What is self-tuning control?	03
	(b) Explain the constant flux speed control using voltage source inverter	04
	(c) Explain vector control method of speed control of inductor motor with block diagram.	07
	OR	
Q.4	(a) Compare Synchronous Motor and BLDC machine in brief.	03
	(b) What is load equalization in regards with electric drives? Why it is required?	04
	(c) Explain d-q model of induction motor.	07
Q.5	(a) Explain in brief about transient stability of an electric drive.	03
	(b) Draw block diagram of solar and battery operated drive.	04
	(c) Explain advantages & disadvantages of traction drives.	07
	OR	
Q.5	(a) State limitations of V/f control I.M. drive	03
	(b) Explain requirement of servo motor drive.	04
	(c) State the advantages and applications of synchronous motor drives.	07
