

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VI(NEW) – EXAMINATION – SUMMER 2019
Subject Code:2162003
Date:10/05/2019
Subject Name:Control of Electric 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) Discuss the characteristics of SCR with necessary diagrams.	03
	(b) Enlist the advantages of electrical drives.	04
	(c) Classify different types of Drives. Also Discuss the closed loop control of electrical drives in general.	07
Q.2	(a) Compare three point starter and four point starter.	03
	(b) Discuss the nature and classification of load torques.	04
	(c) Illustrate the four quadrant operation of electrical drive for hoist load.	07
	OR	
	(c) What are the control strategies for chopper? Explain in brief.	07
Q.3	(a) An electrical motor has a rotational load directly connected to its shaft. The torque speed characteristics of motor and load are $T = 15 - 0.5 \omega_m$ $T_L = 0.5 \omega_m^2$ Find the operating speed ω_m and Check the steady state stability.	03
	(b) Discuss turn on methods of SCR.	04
	(c) Write a short note on DIAC and TRIAC.	07
	OR	
Q.3	(a) Explain the working of type B chopper.	03
	(b) Discuss various performance parameters of inverter.	04
	(c) Which type of chopper is suitable to drive a lift (elevator)? Illustrate the working of the same chopper.	07
Q.4	(a) Explain regenerative braking of dc motor in detail.	03
	(b) Enlist various methods to control the speed of induction motor.	04
	(c) Explain two quadrant operation of single phase full bridge converter with RLE load.	07
	OR	
Q.4	(a) List the advantages of PWM Techniques.	03
	(b) Explain the working of single phase inverter with RL load.	04
	(c) Discuss the operation of three phase full wave rectifier with necessary waveforms.	07
Q.5	(a) Discuss operation of IM under Non-Sinusoidal voltage supply.	03
	(b) Discuss about stepper motor drives.	04
	(c) Explain the working of single phase inverter with RLE Load.	07
	OR	
Q.5	(a) Give the disadvantages of phase controlled rectifier fed DC motor drive.	03
	(b) List out Starters used for induction Motor? Explain any one of them.	04
	(c) Illustrate the working of linear induction motor.	07
