

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII EXAMINATION – SUMMER 2025

Subject Code:3172422

Date:08-05-2025

Subject Name:Advanced Industrial 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.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Explain term “State of Art of Special Electrical Machine”.	03
	(b) Define and explain “Group drive” in brief.	04
	(c) Explain construction and working principle of BLDC machine.	07
Q.2	(a) What is open loop control of motor? Explain.	03
	(b) Discuss function of Power Electronics modulator in Electric drive.	04
	(c) Explain construction and working principle of switched reluctance motor (SRM).	07
	OR	
	(c) Explain construction and working principle of Permanent Magnet DC (PMDC) motor.	07
Q.3	(a) What is working principle of Stepper motor? Explain.	03
	(b) Compare Permanent Magnet DC (PMDC) motor and Brushless DC (BLDC) motor.	04
	(c) Write a short note on DC linear motor.	07
	OR	
Q.3	(a) Explain term “Rated speed of the motor”.	03
	(b) Discuss about significance of Microprocessor in control of motor.	04
	(c) Explain Power Converter circuit of PMAF machine.	07
Q.4	(a) List the merits and demerits of SRM.	03
	(b) How to choice of drives? Explain it in details.	04
	(c) Write a short note on control of stepper motor.	07
	OR	
Q.4	(a) What is concept of Energy efficient motor? Explain.	03
	(b) Discuss Power Factor Improvement technique.	04
	(c) Write a short note on: “Loss in Electric Drive System”.	07
Q.5	(a) Explain term “Power factor”.	03
	(b) Discuss in brief about Standard Motor Efficiency in Electrical Drives.	04
	(c) Write a short note on Linear Reluctance motor.	07
	OR	
Q.5	(a) Explain term “Motor life cycle”.	03
	(b) Define term “Harmonics”. Why it is required to mitigate harmonics? Explain in brief.	04
	(c) Explain Open Loop and Closed Loop Control of Servo motor.	07
