GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VIII (OLD) EXAMINATION – SUMMER 2019

Subject Code: 181702   **Date: 09/05/2019**
Subject Name: Motion Control
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.

Q.1	**(a)**	Briefly explain various selection criteria for the DC motors for incremental motion Control application.	**07**
	(b)	Draw block diagram of Incremental Motion system also justify the need of position sensors.	**07**
Q.2	**(a)**	Explain what you mean by backlash and dead zone during transmission of rotational motion in control application. How it can be limited and what are its effect on the performance control application.	**07**
	(b)	Briefly explain and draw operation of linear variable reluctance step motor with necessary diagram.	**07**

OR

	(b)	Explain the role of speedup capacitor in active suppression controller	**07**
Q.3	**(a)**	Explain what are the effects of torsional resonance on performance of incremental motion servos? Also explain its effect to improve the stability of the system?	**07**
	(b)	Describe and explain bipolar PWM dc motor amplifiers.	**07**

OR

Q.3	**(a)**	Explain the velocity control system with the voltage amplifier.	**07**
	(b)	Explain Resolvers and Magnetic pickups as Encoders.	**07**
Q.4	**(a)**	Draw and explain Unidirectional and Bi directional logic sequencer for step motor.	**07**
	(b)	Explain what are points are considered for power amplifier design consideration? Explain it.	**07**

OR

Q.4	**(a)**	Explain the need of suppression circuit in step motor drives. Enumerate various scheme of it and explain in brief.	**07**
	(b)	Explain the Input and Output relationship in linear DC servo amplifier, with the help of schematic and mathematical model	**07**
Q.5	**(a)**	Explain the working of brushless DC motor with figure	**07**
	(b)	Briefly explain about microprocessor based stepper motor speed control.	**07**

OR

Q.5	**(a)**	Obtain liberalized model for phase locked servo system and describe its working.	**07**
	(b)	Explain effect of lead angle in closed loop control of step motor.	**07**

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