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22MAR14

First Semester M.Tech. Degree Examination, Jan./Feb. 2023

Drives and Control Systems in Automation

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	Explain the working of synchronous and Asynchronous motors with relevant diagrams.	10	L2	CO1
	b.	Differentiate between induction and servomotors.	10	L2	CO1
OR					
Q.2	a.	Write a note on torque versus speed characteristics of motors.	10	L1	CO1
	b.	Explain the concepts of linear and frameless motors.	10	L2	CO1
Module – 2					
Q.3	a.	Explain applications of brushless DC motor.	10	L2	CO2
	b.	Explain the working of AC servomotor.	10	L2	CO2
OR					
Q.4	a.	What are the types of industrial drives? Briefly explain.	10	L1	CO2
	b.	Explain advantages of drives over other prime movers.	10	L2	CO2
Module – 3					
Q.5	a.	Explain basic structure of PLC.	10	L2	CO3
	b.	Briefly explain data storage methods used in PLC.	10	L2	CO3
OR					
Q.6	a.	Differentiate between conventional ladder and PLC ladder.	10	L2	CO3
	b.	Explain series and parallel functioning of 'OR' and 'AND' logic functions.	10	L2	CO3
Module – 4					
Q.7	a.	Write a note on on-delay and off-delay timers.	10	L1	CO4
	b.	Explain the working of retentive timers.	10	L2	CO4
OR					
Q.8	a.	How can timers and counters be combined? Explain.	10	L2	CO4
	b.	Write a note on PLC safety.	10	L1	CO3
Module – 5					
Q.9	a.	Explain the working of DCS.	10	L2	CO4
	b.	How are computer networks and communication handled in DCS? Explain.	10	L2	CO4
OR					
Q.10	a.	Explain different BUS configurations used in industrial automation.	10	L2	CO4
	b.	Explain HART and OLE protocol.	10	L2	CO4
