Seat No.:	Enrolment No
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GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII EXAMINATION - WINTER 2015

	•	et Code: 171702 Date: 07/12/2015	
Ti	-	ct Name: Programmable Automation Controller 10:30am to 1:00pm Total Marks: 70 ions:	
	-	 Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks. 	
Q.1	(a) (b)	With neat diagram explain PLC Scanning in detail. (i) List out analog & ON/OFF type of input devices connected to PLC. (ii) List out major advantages of PLC.	07 04 03
Q.2	(a) (b)	03 outputs with following operation: If any two inputs are on, a red light goes on; If any three inputs are on, an siren sounds; If all four inputs are on, the fire alarm is generated.	
	(b)	OR Explain Up counter (CTU) function with timing diagram and suitable example.	07
Q.3	(a) (b)	Explain basic compare (EQ & GE) functions of PLC. Develop ladder diagram to generate output if input count is between 50 & 100 using compare function. Describe PID function of PLC in detail.	07 07
Q.3	(a) (b)	OR Explain addition & multiplication functions of PLC. Develop ladder diagram to convert temperature reading from Celsius to Fahrenheit. Explain PLC analog signal processing with example.	07 07
Q.4	(a) (b)	Describe PLC SKIP and Master Control Relay functions in detail. Explain basic Two-axis Robot with PLC sequencer control.	07 07
Q.4	(a) (b)	OR Describe PLC Table to Register Move and FIFO function in detail. Explain various BIT handling functions of PLC in brief.	07 07
Q.5	(a) (b)	Explain MONITOR & FORCE mode functions of PLC. Construct ladder diagram with explanation: How many parts per minute are going past a certain process point? Make use of timer and counter.	07 07
Q.5	(a) (b)	OR Discuss various factors to be considered in selecting PLC. Construct ladder diagram with explanation: There are 3 mixing devices on a process line: A, B, C. After process begins, mixer A is to start after 7 sec elapse. Next, mixer B is to start 3 sec after A. Mixer C is to start 5 sec after B. All then remain ON until a master Enable switch is turned off.	07 07
