Seat No.:	English and Ma
Sear No.	Enrolment No.

Subject Code: 3341702

## **GUJARAT TECHNOLOGICAL UNIVERSITY**

DIPLOMA ENGINEERING - SEMESTER - IV-EXAMINATION - WINTER 2015

Subject Name: PROGRAMMABLE LOGIC CONTROLLER AND DISTRIBUTED

Ti	ime: (	DL SYSTEM D2:30 PM TO 5:00 PM Total Marks	: 70
m	2. M 3. F 4. U 5. U	ttempt all questions.  Iake Suitable assumptions wherever necessary.  igures to the right indicate full marks.  se of programmable & Communication aids are strictly prohibited.  se of only simple calculator is permitted in Mathematics.  nglish version is authentic.	
Q.1		Answer any seven out of ten.	14
	1. 2. 3. 4. 5. 6. 7. 8. 9.	Define continuous process.  Define discrete state process.  Draw symbol of green light & solenoid valve for PLC.  List any four selection criteria for PLC.  Write any four application of PLC.  List PLC programming languages.  List different types of isolation techniques of PLC.  List PLC peripherals.  Draw ladder diagram for Ex-OR gate.  List any four PLC operational fault.	
Q.2	(a)	Draw block diagram of PLC system. OR	03
	(a) (b) (b)	Describe working of PLC architecture .  Draw schematic diagram of any one discrete state process control system.  OR  Draw schematic diagram of any one continuous process control system.	03 03
	(c)	Draw schematic diagram of SCADA.  OR	04
	(c)	Draw symbol of (1) NC contact (2) NO level limit switch (3) NC Pressure limit switch (4) NO temperature limit switch	04
	(d)	List advantages of PLC system.  OR	04
	(d)	Explain any two digital output module.	04
Q.3	(a)	Draw diagram showing isolated input wiring connection to PLC.  OR	03
	(a) (b)	Draw diagram showing non- isolated input wiring connection to PLC. Explain PLC scanning process.  OR	03 03
	(b)	List the steps for programming sequence of PLC.	03
	(c)	Explain legal (proper) & illegal (improper)PLC ladder diagram.  OR	04
	(c) (d)	List steps to upload ON and OFF line program by hand held programmer.  Draw ladder logic for NAND & NOR gate.	04 04

Date: 17/12/2015

## OR

	(d)	Draw ladder logic for AND & OR gate.	04
Q.4	(a)	Draw ladder logic diagram for holding contact.	03
		OR	
	(a)	List corrective steps to be taken in case of PLC operational fault.	03
	(b)	Describe DCS concept in brief.	04
		OR	
	(b)	Draw ladder diagram for Boolean expression $Y=PQR + P(Q + R)$ .	04
	(c)	List different types of DCS display & describe any two in details.	07
Q.5	(a)	Draw hierarchy of DCS.	04
_	(b)	Sate function of each layer of DCS.	04
	(c)	List and explain DCS topology.	03
	(d)	Explain DDC(direct digital control).	03
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