Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SEVENTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

Course Code: AE401

Course Name: LOGIC AND DISTRIBUTED CONTROL SYSTEM

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1	a)	Explain in detail the architecture of PLC	(10)
	b)	What is the need of isolators in PLC IO modules? Explain with block diagram indicating circuit details.	(5)
2	a)	Explain IEC 61131 standard for PLC programming	(8)
	b)	Draw the PLC ladder for Bottle filling system	(7)
3	a)	With relevant figure explain analog and discrete I/O modules	(10)
	b)	What are the advantages of PLC over relay logic	(5)

PART B

Answer any two full questions, each carries 15 marks.

4	a)	With neat sketches, explain different types of displays in DCS systems	(10)
	b)	Explain the role of DCS in industrial automation using automation pyramid	(5)
5	a)	Explain the protocols used in the computer controlled systems and mention its standards.	(5)
	b)	Explain the different configurations of Data Acquisition System.	(5)
	c)	Write a short note on supervisory control.	(5)
6	a)	Show how the following units are interfaced in SCADA system and explain the functions of each unit a) Human Machine interface unit b) Master Terminal unit c) Remote terminal unit.	(10)
	b)	How an automation pyramid helps in industrial automation?	(5)

PART C

Answer any two full questions, each carries 20 marks.

7	a)	Explain the hardware elements in high level operator interface in DCS?	(10)
	b)	Explain the various record keeping function available with DCS	(5)
	c)	Explain the modular packaging approach for providing high level operator interface in DCS?	(5)
8	a)	Define risk. What are the commonly adapted risk terminologies?	(8)
	b)	Illustrate safety life cycle with neat schematic.	(12)
9	a)	Enumerate the design consideration for operator input used with high level operator interfaces in DCS	(10)
	b)	Define the functions of safety instrumented system	(10)

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