APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Scheme for Valuation/Answer Key
Scheme of evaluation (marks in brackets) and answers of problems/key
SEVENTH SEMESTER B.TECH DEGREE EXAMINATION (S), MAY 2019
Course Code: AE401
Course Name: LOGIC & DISTRIBUTED CONTROL SYSTEM

Max. Marks: 100   Duration: 3 Hours

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

1	a)	Block diagram: 5, Description: 5	(10)
	b)	Different data types used in PLC: 5	(5)
2	a)	Sequential Function Chart:4 example:4	(8)
	b)	RS-232 Standard: 5 difference from RS-485: 2	(7)
3	a)	Functional Block Diagram:4 Ladder program:5	(9)
	b)	Registers : 2 each for hold, input,output	(6)

PART B
Answer any two full questions, each carries 15 marks.

4	a)	Basic blocks: 6 flow chart of a temperature control process: 4	(10)
	b)	Supervisory control system: 3 Example: 2	(5)
5	a)	Block diagram of Distributed Control system: 4, Description: 4	(8)
	b)	Local Control Unit: Diagram: 4, Description: 3	(7)
6	a)	Block diagram: 6 working of Direct Digital Control : 4	(10)
	b)	functions of local highway: 2.5 and global highways: 2.5	(5)

PART C
Answer any two full questions, each carries 20 marks.

7	a)	Operator interface requirement in DCS: 5	(5)
	b)	Guidelines for human factor in operator interface design: 5	(5)
	c)	Low-level operator interfaces: Sketches: 5, Explanation: 5	(10)
8	a)	Hazard and operability study (HaZop): 10	(10)
	b)	IEC61511 standard for Functional safety: 5	(5)
	c)	Safety Integrity Level: 5	(5)
9	a)	High level interface architectures in DCS: Diagram: 6, Description: 4	(10)
	b)	Process Hazard Analysis: 5	(5)
	c)	Safety life cycle: 5	(5)

****