Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIFTH SEMESTER B.TECH DEGREE EXAMINATION(R&S), DEC 2019

Course Code: MR305

Course Name: PLC AND DATA ACQUISITION SYSTEMS

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks.

1		Explain data loggers	5
2		Write a note on isolation amplifiers	5
3		Define and explain sampling theorem	5
4		Explain opto isolator in PLC input output module	5
5		Draw the ladder diagram for 2 input nand gate	5
6		Explain the counter functions of PLC	5
7		Explain interfacing HMI to PLC	5
8		List and explain PLC types	5

PART B

Answer any three questions, each carries 10 marks.

9	a)	What is interrupt in computer control? Explain	5
	b)	Draw and explain block diagram of computer control	5
10	a)	A 5 bit unipolar A/D converter has input range of 0 to 5 volts How many quantization levels are present with this A/D converter? What is its resolution?	3
	b)	If the converter output binary number is (10110) what is the voltage being read?	3
	c)	State merits and demerits of SAR over dual slope ADC	4
11	a)	Draw and explain data acquisition system	7
	b)	What are the needs for DAS	3
12	a)	Draw and explain scanning process in PLC	7
	b)	List and explain the capabilities of PLCs	3
13		Explain the architecture of a PLC system with neat diagrams	10

PART C

Answer any two questions, each carries 15 marks.

14	a)	Draw a ladder diagram for liquid level controller	10
	b)	Write a note on arithmetic instructions in PLC	5

15	a)	Explain following terms in PID control (i) Error (ii) Set point (iii) Process variable (iv) Control variable	8
	b)	Draw the ladder diagram for JK flip flop	7
16	a)	What is the need for an HMI system	6
	b)	Explain the networking in PLC	9
17	a)	Describe the steps for connecting PLC to computer	9
	b)	Explain interlocking with example	6