Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

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

Course Code: MR303

Course Name: MICROPROCESSORS AND MICROCONTROLLERS

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks.

1		Distinguish between general purpose registers and special purpose registers.	5
2		Explicate about I/O addressing modes of 8086.	5
3		Justify about the role of control word register in 8253 timer.	5
4		Elucidate about the salient features of 8051 microcontroller.	5
5		Analyse the purpose of using DAA (Decimal Adjust after Addition) instruction.	5
6		Develop a program for 8051 microcontroller to find out how many equal bytes between two memory blocks 10H to 19H and 20H to 29H.	5
7		Design the interfacing of serial ADC with 8051 microcontroller.	5
8		How can we interface a LCD with 8051 microcontroller?	5

PART B

Answer any three questions, each carries 10 marks.

9	a)	Sketch the architecture of 8086 microprocessor.	5
	b)	Write the functions of following pins of 8086. (a) ALE (b) HOLD (c) $\overline{\text{INTA}}$ (d) HLDA (e) NMI	5
10	a)	Classify various instruction set of 8086 processor.	3
	b)	Distinguish between processor control instructions and transfer control instructions.	7
11	a)	Design the interfacing of single 8255 with 8086 processor.	6
	b)	What is the purpose of giving initialization command word and operational command word to 8259 while interfacing with 8086?	4
12	a)	Draw the architecture of 8051 microcontroller and clarify in detail.	7
	b)	What is the role of PSW 8-bit register in 8051 microcontroller?	3

13 a) With a neat diagram demonstrate the working of 8086 in minimum mode configuration. 7

b) Develop a timing diagram to show the minimum mode write cycle. 3

PART C

Answer any two questions, each carries 15 marks.

14 a) Develop a program to generate a square wave of 1 KHZ from the pin P3.1 of 8051, using timer-0. Assume suitable crystal frequency. 7

b) Write in detail about the role of various interrupts handled by 8051 microcontroller. 8

15 a) Analyse various addressing modes of 8051 with an example. 8

b) What are the different types of jump and call instructions? Point out each type in detail. 7

16 a) Design the interfacing of 4x4 matrix keyboard with 8051 microcontroller. 10

b) How can we interface a DAC with 8051? 5

17 a) Design an 8051 based system interfaced with external ROM and RAM without using internal memory. 10

b) Design the interfacing of serial ADC with 8051. 5