Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fifth Semester B.Tech Degree Regular and Supplementary Examination December 2020

Course Code: CS305

Course Name: MICROPROCESSORS AND MICROCONTROLLERS

Duration: 3 Hours

Max. Marks: 100

PART A

Answer all questions, each carries 3 marks. Marks

1		Differentiate minimum mode and maximum mode operations of 8086.	(3)
2		Draw the architecture of 8088.	(3)
3		Explain the uses of stack in 8086.	(3)
4		What is a Macro? How can we define a macro?	(3)

PART B

Answer any two full questions, each carries 9 marks.

5	a)	Outline any five minimum mode signals and their functions.	(5)
	b)	Explain the physical memory organization of 8086.	(4)
6	a)	Write an 8086 assembly language program to count the number of 1's and 0's in a binary string.	(6)
	b)	List any three assembler directives and write their functions.	(3)
7	a)	Write an 8086 assembly language program to find the number of positive and negative numbers from a given series of signed numbers.	(5)
	b)	List the control flags in 8086 and write their functions.	(4)

PART C

Answer all questions, each carries 3 marks.

8		Write short note on classification of 8086 interrupts.	(3)
9		Explain interrupt service routines.	(3)
10		While interfacing a static memory with 8086, which address range will be normally assigned to EPROMS and why?	(3)
11		Name the given ICs (i) 8255 (ii) 8257 (iii)8279	(3)

PART D

Answer any two full questions, each carries 9 marks.

12		Explain the architecture of 8259 with diagram.	(9)

13	a)	Suppose an external device interrupts the processor at the interrupt pin NMI, write down the steps to be performed by 8086 in response.	(4)
	b)	Write the different input modes of programmable keyboard and display interface.	(5)
14	a)	Explain the architecture of 8257 with diagram.	(6)
	b)	Explain the major features of mode 2 in 8255	(3)

PART E

Answer any four full questions, each carries 10 marks.

15	a)	Classify the microcontrollers based on their types.	(5)
	b)	Draw and explain the internal data memory structure of 8051.	(5)
16	a)	List any five applications of microcontrollers.	(5)
	b)	Name the 16 bit registers in 8051 and write its function.	(5)
17	a)	Explain the architecture of 8051.	(7)
	b)	How the stack operations differ in 8086 and 8051?	(3)
18	a)	Explain the timers in 8051 with their special function registers.	(6)
	b)	Write an 8051 program to find the transpose of a 2X2 matrix stored sequentially from 30H. Results should be stored from location 50H.	(4)
19	a)	Explain the architecture of 8254 with neat diagram.	(6)
	b)	Write any four addressing modes of 8051.	(4)
20	a)	Write an 8051 program to compute x to the power n where both x and n are 8 bit numbers given by users and result should not be more than 16 bits.	(6)
	b)	Explain the IO ports in 8051.	(4)

****