Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FIFTH SEMESTER B.TECH DEGREE EXAMINATION(R&S), DECEMBER 2019

Course Code: CS305

Course Name: MICROPROCESSORS AND MICROCONTROLLERS

Max. Marks: 100   Duration: 3 Hours

PART A
Answer all questions, each carries3 marks.

Marks

1   Find the physical address of the memory locations referred by the following   (3)
    instructions, when DS=BCOOH, SI=0023H, BX=0012H

    a)MOV AL,[SI]   b) MOV [BX][SI],DL

2   What are the differences between 8086 and 8088 microprocessors?   (3)

3   Explain the following addressing modes of 8086 with suitable examples.   (3)

    a) Immediate   b)Register Indirect

4   Explain the differences between 8086 procedure call and macro call   (3)

PART B
Answer any two full questions, each carries9 marks.

5   Explain minimum mode configuration of 8086.   (9)

6   Explain register set of 8086.   (9)

7   Write an 8086 assembly language program to find the sum of all numbers less   (9)
    than 50 in an array of n numbers.

PART C
Answer all questions, each carries3 marks.

8   Explain IO port address decoding with an example.   (3)

9   Explain the events performed in 8086 when an interrupt occurs.   (3)

10 What is the mode and I/O configurations for various ports in 8255 after its   (3)
    control register is loaded with 86H.

11 Explain how the INT n instruction finds the starting address of its interrupt   (3)
    service routine

PART D
Answer any two full questions, each carries9 marks.

12 Explain the block diagram of 8259, priority interrupt controller.   (9)

13 Interface 32Kx8 RAM using four numbers of 8Kx8 memory chips and 16Kx8   (9)
    ROM using two numbers of 8Kx8 EPROM chips. The address map is given as
    RAM starts at 00000H and ROM ends at FFFFFH.

14 a   Explain the features of 8257, DMA controller.   (4)

b   What are the differences between peripheral I/O and memory mapped I/O   (5)
     schemes

PART E

Answer any four full questions, each carries10 marks.

15 a) What are the differences between microprocessors and microcontrollers?   (4)

    b) Explain programmable IO ports of 8051 microcontroller.   (6)

16   Explain the architecture of 8051 microcontroller using block diagram.   (10)

17   Explain the architecture of 8254/8253 programmable timer using block diagram.   (10)

18 a) Describe the factors that affect the selection of processor for a microcontroller   (5)
        based design.

    b) Explain the working of stack of 8051 microcontroller.   (5)

19   Explain addressing modes of 8051 microcontroller.   (10)

20 a) Write an 8051 microcontroller assembly language program to check whether the   (6)
        given 8-bit number has odd number of ones.

    b) Explain the working of the following instructions with suitable example.   (4)
        a) MOVX   b) XCHD   c) AJMP   d) SWAP

                                         ****