Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

IV SEMESTER B.TECH. COMPUTER SCIENCE AND ENGINEERING

MAKE UP EXAMINATIONS, APRIL 2019

SUBJECT: MICROPROCESSORS [CSE 2203]

REVISED CREDIT SYSTEM
17.06.2019

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL FIVE** questions.
- Missing data may be suitable assumed.

1A. State the purpose of control flags in 8086 and explain the various control flags. How does it differ from conditional flags ? **3M**

1B. i) What will be the result of execution of the following set of 8086 instructions where A is a byte with value 10H at an offset 2000H in data segment? **4M**

```
LEA BX, A
MOV byte ptr[BX], 10
```

ii)What will be the result if the same set of instructions are executed with BP register instead of BX?

1C. i) With the help of an example, distinguish between Register indirect and Register relative addressing modes in 8086. **3M**

ii) Distinguish between END and ENDS assembler directives in 8086.

2A. Write an 8086 assembly language program which compares two strings X & Y and store the following in a memory location (Z). Assume the input strings have only uppercase alphabets. **3M**

Z = G, if X > Y
Z = L, if X < Y
Z = E, if X==Y

Example: IF X = ABC and Y = ABA, then Z = G.

2B. i) Write down the corresponding 8086 instruction to perform each of the following operations. **4M**

a. OR the value 1122H with the data addressed by BP
b. Invert the bits in position 1, 2, 5, and 6 in BX register.
c. Extract the upper nibble in AX and save the result in AX.
d. XOR the data stored 40 bytes after the location addressed by BP with AL and save the result in AL.

ii) Discuss the difference between passing parameters to macros and procedures with relevant code snippets.

2C. Write down the sequence of 8086 instructions to subtract the packed BCD number 79H from 45H (i.e., 45H – 79H). The result should also be a packed BCD number. Show all calculations as it is done by the processor. **3M**

3A. Write an 8086 assembly language program to read a string and a character from keyboard .The program has to count the number of occurrences of the given character in the input string and display the count in the console. Assume the value of count will always be in the range of 0-9. **4M**

3B. What are the steps taken by an 8086 to execute an interrupt? Explain how to set overflow flag without using STO instruction. Write the address in Interrupt Vector Table to fetch the ISR related to INTO instruction. **3M**

3C. Draw and explain the types of control word format available in 8255A.Explain the need for using 8255A along with 8086 processor. **3M**

4A. Write any two differences between minimum and maximum modes of 8086.Explain the role of the following pins in 8086. **3M**

i) DEN# ii) INTR

4B. List the four major processing units of 80286 microprocessor and briefly describe the function of each of them. **3M**

4C. With the help of a neat diagram, explain how 80386 computes a physical address when its paging mode is enabled. **4M**

5A. Discuss the following signals of Pentium Pro Processor: **2M**

i) $\overline{D63} - \overline{D0}$ ii) $\overline{AP1} - \overline{APO}$ iii) $\overline{DBSY}$ iv) $\overline{FERR}$

5B. Explain the memory system in Pentium. Discuss any two improvements of Pentium processor over 80486. **4M**

5C. Distinguish between the hyper threading technology in Pentium 4 processor and traditional dual processor system with the aid of a neat diagram. **4M**