USN [| | | | | | | |]   **10CS45**

Fourth Semester B.E. Degree Examination, June/July 2019
Microprocessors

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions, selecting*
atleast TWO questions from each part.

PART – A

1   a.   With a neat functional block diagram discuss the architecture of 8086 processor.   **(10 Marks)**
    b.   Describe the process of physical address generation in 8086 with an example.   **(06 Marks)**
    c.   Compare and contrast real and protected mode memory addressing.   **(04 Marks)**

2   a.   Define Paging. Draw and discuss the paging mechanism of advanced processors.   **(10 Marks)**
    b.   Define addressing mode. Discuss any five data addressing modes with an example to each.   **(06 Marks)**
    c.   Construct machine code for the following instructions:
         (i) MOV BX , CX   (ii) MOV DL , [SI + 1240H]   **(04 Marks)**

3   a.   Explain the following instructions with an example:
         (i) MUL   (ii) XLAT   (iii) AAM   (iv) CMPSB   (iv) LOCK   **(10 Marks)**
    b.   Define assembler directives. Explain the following assembler directives with an example.
         (i) PUBLIC   (ii) ORG   (iii) PROC   (iv) EQU   **(10 Marks)**

4   a.   Discuss shift instructions with an example.   **(08 Marks)**
    b.   Write an assembly level program to sort an array of N bytes in an ascending order using bubble sort technique.   **(08 Marks)**
    c.   What are the differences between NEAR and FAR procedures.   **(04 Marks)**

PART – B

5   a.   Compare MACRO with procedure.   **(04 Marks)**
    b.   Define Modular programming. Write an algorithm to convert Binary number to ASCII.   **(08 Marks)**
    c.   Develop an assembly level program to read 2 digit Hexadecimal number and display the same on the screen.   **(08 Marks)**

6   a.   What are the functions of the following pins of 8086 processor:
         (i) ALE   (ii) MN / $\overline{\text{MX}}$ (iii) NMI   (iv) QS0, QS1   (v) HOLD   **(10 Marks)**
    b.   Draw and discuss the maximum mode of 8086 processors.   **(10 Marks)**

7   a.   Explain 8086 memory interfacing with an example.   **(08 Marks)**
    b.   Explain absolute address decoding technique with its block diagram.   **(08 Marks)**
    c.   Write differences between I/O mapped I/O and memory mapped I/O.   **(04 Marks)**

8   a.   Describe the architecture of 8255 PPI, with its block diagram.   **(10 Marks)**
    b.   What is IVT? Explain IVT with its structure.   **(10 Marks)**

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