Department of Mathematics
I.I.T., Kharagpur

Mid Autumn Semester Examination 2016-2017
Subject :Systems Programming (MA40003/MA60003)
5ᵗʰ Yr. M.Tech.(Dual), 4ᵗʰ Yr. M.Sc.(MA), 1ˢᵗ Yr. M.Tech(CSDP)
No. of Students : (58 + 28)

Time : 02 Hours   Marks : 30

Answer all **NINE** Questions
The question paper consists of **ONE page**

1. With architectural diagram, explain the functioning of 8086 microprocessor.

    (3M)

2. Explain with appropriate example (instructions) three different ways of passing parameters to and from a procedure.

    (3M)

3. Why PTR operator is sometimes necessary in 8086 processor ? Explain with example. Discuss the basic difference between a constant declaration (BYTE or WORD etc.) and an EQU directive.

    (3M)

4. Discuss the use of following assembly instructions :

    CLD, SCASW and REPE

    Suppose AL contains a positive number. Divide AL by 8 and store the remainder in AH. Write necessary ALP instructions.

    (3M)

5. Using string instructions, write an ALP to move a block of data of length N from source to destination. Assume all possible conditions.

    (3M)

6. Write an ALP to read an integer and display the sum of individual digits of the integer using stack only.

    (3M)

7. Write ALP to add two 3 X 3 matrices, where matrices are stored in array (row wise). Display the resultant matrix.

    (4M)

8. Write a procedure in ALP to convert four digit hexadecimal number to decimal number.

    (4M)

9. Write one ALP to create an array of 10 numbers, get it populated via keyboard, and perform bubble-sort over the array to sort it.

    (4M)

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