Mid Autumn Semester Examination 2010-11
Systems Programming (MA40003/MA60003)

Time : 2 Hours   Marks : 30

Answer ALL Ten Questions
ALL Questions carry equal marks

1. Discuss the organization of Intel 8086 microprocessor. Also write the function of different registers.

2. Give efficient translation of (i) BX=AX + CX , (ii) If (CX > (12-DX)) then BX = BX + 10 else BX = BX -10 in assembly language. Content of no register other than BX should change. Do not use the concept of stack.

3. To implement loops of the type (i) while condition do ... (ii) repeat ... until Condition and (iii) for each case do ... for addition of elements of an integer array of size 10, write necessary instructions in assembly language.

4. Suppose AX = 512CH and BX = 4185H. After execution of the instruction
                                    ADD AX , BX
   what will be the value of AX ? Whether signed or unsigned overflow will occur ? Justify your answer.

5. Write a procedure to display the content of the register BX as hexadecimal number. Also write the corresponding main function.

6. Write a set of assembly instructions to find the sum of the elements of 4th row and the sum of the elements of 3rd column of a matrix A of size 5 X 6. Assume that the address of the matrix is available in DS : DX and the length of each element of A is two bytes.

7. Write a procedure in assembly language to find the product of two integers by addition and bit shifting. Do not use MUL instruction.

8. Discuss the use of the following instructions : (i) CLD, (ii) LODSB, (iii) CMPSB, (iv) PTR and (v) XLAT.

9. Illustrate the concept of passing parameters by value and passing parameters by address with the help of appropriate procedures in assembly language for addition of two integers. Also write the corresponding main programs.

10. Write a program in assembly language to read a string of alphabets terminated by carriage return. Display the frequency of each alphabet in the string.

------------------ X ------------------