MCA 2nd Semester Examination, 2016

MCA

PAPER – MCA-204

Full Marks : 100

Time : 3 hours

Answer any seven questions

The figures in the right-hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

1. (a) What is the function of HOLD signal in 8085 ?

   (b) Write an assembly language program for 8085 to count the number of 1's in a data byte.

(c) How does 8085 microprocessor generate separate control signals for memory and I/O devices? 2 + 5 + 3

2. (a) What is subroutine? How does 8085 microprocessor implement subroutine?

(b) Write an assembly language program to convert 2 digit BCD to binary number using subroutine call. 3 + 7

3. (a) What is the function of auxiliary carry flag of 8085?

(b) What are the length and addressing modes of the following instructions:

(i) IN 05 H

(ii) XRA B

(iii) CALL 2050 H

(iv) STA 2400 H

(c) What is maskable interrupt? Explain the role of INTR and $\overline{\text{INTA}}$ signal of 8085. 2 + 4 + 4

4. (a) Explain the task of DAA and DAD instructions.

(b) What is instruction cycle ?

(c) Draw and explain the timing diagram of OUT 06 H instruction of 8085 microprocessor.   4 + 1 + 5

5. (a) Draw and explain the internal architecture of 8085.

(b) Discuss the memory addressing mode of 8085 microprocessor.   7 + 3

6. (a) Evaluate the total delay of the flowing where microprocessor speed is 2 MHz.

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        MVI  D, 10 H
L2 :    MVI  B, FFH
L1 :    DCR  B
        JNZ  L1
        DCR  D
        JNZ  L2
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(b) Write an assembly language program for 8085 to copy a block of data from one segment of memory to another.   5 + 5

7. (a) Explain the task of the following instructions and calculate time delay of these. (clock frequency 2 MHz) :

    (i) STAX B

    (ii) XRA M

    (iii) XCH G

(b) Write an assembly language program for 8085 microprocessor to sort a set of 8 bit numbers.   6 + 4

8. (a) What is the difference between MAX mode operation and MIN mode operation in 8086 microprocessor ?

(b) How does 8085 microprocessor demultiplex $AD_7 - AD_0$?

(c) Explain the different modes of operation of 8255.   3 + 2 + 5

9. (a) Explain the different addressing modes of 8086 microprocessor.

   (b) Write an assembly language program for 8085 microprocessor to find the smallest number from a set of 8 bit numbers.   5 + 5

10. (a) Explain the different flag registers in 8086 microprocessor.

    (b) Calculate the time for executing the following code. (clock frequency 2 MHz) :

             MVI A, 05 H
             MVI C, 02 H
             ADD C
             INR A
             XRA A
             HLT   5 + 5

[*Internal Assessment* : 30 Marks]