Code : 031511

B.Tech 5th Semester Exam., 2014

MICROPROCESSOR AND ITS APPLICATION

Time : 3 hours   Full Marks : 70

Instructions :

(i) The marks are indicated in the right-hand margin.

(ii) There are **NINE** questions in this paper.

(iii) Attempt **FIVE** questions in all.

(iv) Question No. **1** is compulsory.

1. Choose the correct option (any *seven*) : 2×7=14

    (a) In Intel 8085 microprocessor, number of status flags is

        (i) 3

        (ii) 5

        (iii) 7

        (iv) 9

    (b) The number of memory locations which can be directly addressed by Intel 8085 microprocessor is

        (i) 2^8

        (ii) 2^{12}

        (iii) 2^{16}

        (iv) 2^{20}

(2)

(c) In the instruction STA, 2400 H, the mode of addressing is

    (i) direct addressing

    (ii) register addressing

    (iii) register indirect addressing

    (iv) immediate addressing

(d) When LHLD, 2500 H instruction is executed, the flag affected is

    (i) zero flag

    (ii) sign flag

    (iii) parity and sign flag

    (iv) None of the above

(e) In Intel 8255, 98 H is used as control word. Which of the following statements is correct?

    (i) Port A is used as input port

    (ii) Port B is used as input port

    (iii) Port C_{lower} is used as input port

    (iv) None of the above

(f) Intel 8253 is a

    (i) programmable communication interface

    (ii) programmable interval timer

    (iii) programmable DMA controller

    (iv) None of the above

(3)

(g) The width of data bus in Intel 8086 microprocessor is

  (i) 8-bit

  (ii) 12-bit

  (iii) 16-bit

  (iv) 20-bit

(h) In maximum mode of operation of Intel 8086 microprocessor, the signals S_2, S_1 and S_0 have the status 0, 0, 1 respectively. Which of the following operations will be performed?

  (i) Interrupt acknowledge

  (ii) Read data from I/O port

  (iii) Write data into I/O port

  (iv) Halt

(i) In Intel 8086 microprocessor, when the instruction MOV[0301], AX is executed

  (i) register AX is loaded with 0301 H

  (ii) the content of memory location 0301 is transferred to the register AX

  (iii) the content of register AX is transferred to the memory location 0301

  (iv) None of the above

(4)

(j) ADC is used to

  (i) control analog and digital devices

  (ii) control analog and digital signals

  (iii) convert analog device to digital device

  (iv) convert analog signal to digital signal

2. (a) What is the function of timing and control unit of 8085 microprocessor? Discuss. 6

  (b) What is the role of status flags in a microprocessor? Discuss the function of various status flags of 8085 microprocessor. 8

3. (a) Write an assembly language program to find the smallest number from a data array for 8085 microprocessor. 7

  (b) Write an assembly language program to add two 16-bit numbers, the sum may be 16-bit or more for 8085 microprocessor. 7

4. (a) Discuss the direct memory access data transfer scheme. 7

  (b) What is handshaking mode of data transfer? Discuss. 7

5. What is Intel 8253? Discuss how this chip is used to generate delay and square wave.   14

6. (a) How many machine cycles are required by the following instructions of Intel 8085?   6

   (i)   MOV r_1, r_2
   (ii) MVI r, data
   (iii) MOV r, M
   (iv) LXI rp, data
   (v)   LDA addr
   (vi) IN addr

   (b) Draw the timing diagram for LXI H, 2400 H instruction.   8

7. (a) What are the roles of pointer and index registers in Intel 8086 microprocessor? How are they used?   7

   (b) How is the physical address generated in 8086 microprocessor? Explain with examples.   7

8. (a) Explain the following instructions of Intel 8086 microprocessor :   6

   (i)   MUL mem/reg
   (ii) IDIV mem/reg
   (iii) LOOPNZ disp
   (iv) MOVSW

   (b) Write an assembly language program to get the sum of series of 16-bit numbers for 8086 microprocessor.   8

9. Write notes on any *two* of the following :   7×2=14

   (a) Sample and hold

   (b) Assembler

   (c) Stack pointer

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