Code : 031511

B.Tech. 5th Semester Exam., 2013

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 general purpose register is

(i) 2

(ii) 4

(iii) 6

(iv) 8

(b) The status of S_1 and S_0 pins of Intel 8085 microprocessor are 0 and 1 respectively. The operation performed is

(i) HALT

(ii) WRITE

(iii) READ

(iv) FETCH

(c) In the instruction MOV A, B, the number of machine cycles required is

(i) 1

(ii) 2

(iii) 3

(iv) 4

(d) In LXI H, 2400H instruction, the mode of addressing is

(i) direct addressing

(ii) register addressing

(iii) register indirect addressing

(iv) immediate addressing

(e) When the instruction DCRM is executed

(i) the content of accumulator is decremented by one

(ii) the content of memory location addressed by H-L pair is decremented by one

(iii) the content of H-L pair is decremented by one

(iv) the content of memory location addressed by B-C pair is decremented by one

(f) Intel 8257 is a

(i) Programmable Interrupt Controller

(ii) Programmable Communication Interface

(iii) Programmable DMA Controller

(iv) None of the above

(g) Intel 8086 microprocessor can address which of the following number of memory locations directly?

(i) 2^8

(ii) 2^{10}

(iii) 2^{16}

(iv) 2^{20}

(h) In Intel 8086 microprocessor, the number of 16-bit general purpose registers is

(i) 2

(ii) 4

(iii) 6

(iv) 8

(i) In Intel 8086 microprocessor, the number of status flags is

(i) 3

(ii) 5

(iii) 8

(iv) 9

(j) After an arithmetic operation in 8085 microprocessor, the content of the accumulator is 1DH. Which of the following statements is correct?

(i) Zero flag is set

(ii) Sign flag is set

(iii) Parity flag is set

(iv) All flags are set

2. (a) Discuss the function of the following signals of 8085 microprocessor : 6

(i) IO/$\overline{M}$

(ii) INTR

(iii) $\overline{INTA}$

(iv) HOLD

(v) HLDA

(vi) READY

(b) What are the various registers of 8085 microprocessor? Discuss their functions. 8

3. (a) Differentiate between assembly language and high-level language of programming. 7

(b) Write an assembly language program to add a series of 8-bit numbers for 8085 microprocessor. 7

4. What are the various schemes of data transfer from CPU/memory to I/O devices and vice-versa? Discuss the interrupt driven data transfer scheme with suitable example. 14

5. (a) Discuss the different operating modes of Intel 8255. 7

(b) Discuss, how the control word of Intel 8255 is determined. 7

6. (a) Discuss the instruction cycle, machine cycle and state. 6

(b) Draw and explain the timing diagram of memory write operation of 8085 microprocessor. 8

7. Draw the functional block diagram of Intel 8086 microprocessor and explain the function of each functional unit. 14

8. What is addressing mode of a microprocessor? Discuss the different addressing modes of Intel 8086 microprocessor with suitable examples. 14

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

(a) A/D converter

(b) Semiconductor memory

(c) Subroutine

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