

Code : 031511

B.Tech. 5th Semester Exam., 2013

( 2 )

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) :  $2 \times 7 = 14$

(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)  $\overline{IO/\overline{M}}$
  - (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 : 7x2=14
- (a) A/D converter
- (b) Semiconductor memory
- (c) Subroutine

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