

2011

MCA

2nd Semester Examination

MICROPROCESSOR BASED SYSTEM

PAPER—CS/MCA/204

Full Marks : 70

Time : 3 Hours

The figures in the margin indicate full marks.

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

Illustrate the answers wherever necessary.

Answer Question No. 1 and any three from the rest.

- 1. (a) Compare and contrast microprocessor and co-processor.**
- (b) What is common factor of 8085 and 8086 microprocessor?**
- (c) What is an assembler?**
- (d) What are the differences between 8255 and 8279?**
- (e) How many common signals work with 8086 μ p?**

5×2

(Turn Over)

2. (a) Draw the timing diagram of one byte and two byte instruction.
- (b) Draw the internal architecture of 8085 μ p with elaboration of any two main block.
- (c) Calculate the delay time calculation for the following delay routine —

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    MVI B, 09H
LOOP: DCR B
      JNZ LOOP
      HLT

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If clock frequency of system is 2 MHz. 8+8+4

3. (a) Explain the addressing modes of 8086 μ p.
- (b) How can you to generate physical address of CS. Explain with example?
- (c) What is the classification of internal registers of 8086 μ p?
- (d) Explain the interrupt vector of 8086 μ p.

7+3+3+7

4. (a) What is control word of 8255 (PIO)?
- (b) Write a program to read key-5 through port-B and display it through port-A using 8255.
- (c) What are the different modes of 8251? 4+12+4

5. (a) What are the advantages of an assembly language in comparison with high level languages? 2

(b) Write an assembly language program to count from 0 to 9 with a one second delay between each count. At the count of 9, the counter should reset itself to 0 and repeat the sequence continuously. Assume clock frequency of 8085 MPU as 1 MHz. 8

(c) How does the ALE Signal demultiplex the AD_{0-7} bus? Explain with a diagram. 5

(d) The following sequence of instructions are executed by an 8085 microprocessor

C000 LXI SP, D7FF

C003 CALL C008

C008 POP H

What are the contents of the stack pointer (SP) and HL register pair on completion of execution of above instructions? 5

6. (a) Write the functions of two signals HOLD & HLDA in 8085 microprocessor. 3

(b) What is the function of a DMA controller. 2

(c) With block diagram explain the A/D interface to microprocessor 8085. 5

(d) Draw the block diagram of 8259 interrupt controller and describe the functions of each block. 8

(e) What is initialization command words and operational command words. 2

7. (a) Write short notes on any two : 2×5
- (i) Programmable Interval timer 8253;
 - (ii) DMA controller 8237;
 - (iii) Motorola MC 6800 Microprocessor.
- (b) What is the maximum memory size that can be addressed by 8086 ? What is the clock frequency of 8086 ? 2
- (c) What is the need for timing diagram ? Draw memory read timing diagram of 8086 in maximum mode. 2+6
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