Roll No. ....
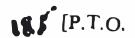
Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *five* questions in all, selecting atleast *one* question from each section.

SECTION–I

1. (a) Draw the Pin configuration of 8086 μp and explain the functioning of all the Pins. 10

   (b) Explain the concept of memory segmentation in 8086 microprocessor. 5

2. (a) Explain the generation of Clock, Ready and Reset signals using 8284 clock generator. 7

   (b) With the help of a block diagram explain the functioning of 8086 microprocessor. 8

SECTION–II

3. Generate the addressing for 8086 μp if 2 RAM chips of 16 K × 8 and 2 EEPROM chips of 16 K × 8 are to be interfaced with 8086 microprocessor. Draw the interfacing circuit required and explain the full decoding concept. 15

4. (a) Draw and explain the Read bus cycle in minimum mode system configuration of 8086 microprocessor. 7

b) With the help of block diagram explain minimum mode configuration of 8086 microprocessor.

8

SECTION-III

(a) Explain th following instructions with an example for eac h:

(i) XLAT.

(ii) AND.

(iii) RCR.

(iv) DAA.

(v) AAS.   5

(b) Compute the Physical address the following instructions will access If DS = 5000H, [CX] = 2000H, and [SI] = 3000H, [BP] = 4000H and [DI] = 1000H. Also explain the addressing modes that are used by each instruction.

(i) MOV AX, [2000H].

(ii) MOV BX, AX.

(iii) MOV AX, [CX].

(iv) MOV BX, [BP+DI].

(v) MOV BX, [BP + SI + 6000H].

(vi) MOV AX, [BP].

(vii) MOV AX, 3000H.   10

6. (a) Write a 8086 ALP to sort an array of ten bytes in descending order.   7

(b) Draw the instruction format and generate th HEX codes for the following instructions :

    (i)   Mov Bx, [BX] [SI].

    (ii) Mov Ax, Dx.   8

SECTION–IV

7. (a) Interface a typical 12-bit DAC with 8255 and write a program to generate a square waveform of period 12 ms. The CPU runs at 3 MHz clock frequency.   7

   (b) Explain with a neat diagram the interfacing of stepper motor to 8086 using 8255 in detail.   8

8. (a) Explain in detail the functioning of 8237 DMA controller.   7

   (b) Discuss the actions performed by 8086 when an interrupt is encountered by it? How 8259A can be used for multiple interrupts priority management? Draw and briefly explain the internal architecture of 8259A programmable interrupt controller.   8