22415

12223

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

Marks

1. Attempt any FIVE of the following : **10**

(a) State the function of the following pins of 8086 microprocessor.

(i) ALE (ii) DT | $\overline{R}$

(b) Write an assembly language instruction of 8086 microprocessor to

(i) Divide the content of AX register by 50H.

(ii) Rotate the content of BX register by 4-bit towards left.

(c) List directives used for procedure.

(d) State any two differences between FAR and NEAR procedure.

(e) Write algorithm to find sum of a series of numbers.

(f) What is the use of REP in string related instruction ? Explain.

(g) Differentiate between ROL and RCL.

2. Attempt any THREE of the following : **12**

(a) What do you mean by procedure ? Explain re-centrant and re-entrant procedure.

(b) What is memory segmentation ? Explain it with reference to 8086 microprocessor.

(c) Describe following assembler directives :

(i) DB (ii) EQU (iii) Segment (iv) Assume

(d) What are the functions of CALL and RET instructions ? Describe in brief.

3. Attempt any THREE of the following : **12**

(a) Describe register organization of 8086 microprocessor.

(b) Write an assembly language program to add BCD numbers in an array of 10 numbers. Assume suitable array. Store the result at the end of the array.

(c) Write a procedure to find factorial of given number.

(d) Write an assembly language program for conversion of BCD to Hexe number.

4. Attempt any THREE of the following : **12**

(a) Draw functional block diagram of 8086 microprocessor.

(b) Write an assembly language program to arrange the numbers in ascending order (Assume suitable data).

(c) Write an assembly language program to Count No. of 1's in a 16-bit number.

(d) Write an assembly language program using MACRO to perform following operation.

X = (A + B) * (C + D)

(e) Describe with suitable example how parameter is passed on the stack in 8086 assembly language procedure.

5. Attempt any TWO of the following : **12**

(a) Define logical and effective address. Describe physical address generation process in 8086 microprocessor. Calculate physical address by taking suitable DS, CS and IP.

(b) State the function of following assembly language programing tools :

(i) Assembler (ii) Linker (iii) Debugger

(c) Describe different addressing modes of 8086 with one suitable example each.

6. Attempt any TWO of the following : **12**

(a) Describe different branching instructions used in 8086 microprocessor in brief.

(b) Explain the following instructions of 8086 :

(i) DAA (ii) ADC (iii) XCHG

(c) Draw flow chart and write assembly language program to reverse the word in string.
