

22415

11920

3 Hours / 70 Marks

Seat No.

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- 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 READY & INTR pin of 8086.
- (b) What is role of XCHG instruction in assembly language program ? Give example.
- (c) List assembly language programming tools.
- (d) Define Macro. Give syntax.
- (e) Draw flowchart for multiplication of two 16 bit numbers.
- (f) Draw Machine language instruction format for Register-to-Register transfer.
- (g) State the use of STC and CMC instructions of 8086.

2. Attempt any THREE of the following :

12

- (a) Give the difference between intersegment and intrasegment CALL.
- (b) Draw flag register of 8086 and explain any four flags.
- (c) Explain assembly language program development steps.
- (d) Explain logical instructions of 8086. (Any Four)

- 3. Attempt any THREE of the following :** **12**
- (a) Draw functional block diagram of 8086 microprocessor.
 - (b) Write an ALP to add two 16-bit numbers.
 - (c) Write an ALP to find length of string.
 - (d) Write an assembly language program to solve $p = x^2 + y^2$ using macro.
(x and y are 8-bit numbers)
- 4. Attempt any THREE of the following :** **12**
- (a) What is pipelining ? How it improves the processing speed ?
 - (b) Write an ALP to count no. of 0's in 16 bit number.
 - (c) Write an ALP to find largest number in array of elements 10 H, 24 H, 02 H, 05 H, 17 H.
 - (d) Write an ALP for addition of series of 8-bit number using procedure.
 - (e) Describe reentrant and recursive procedure with schematic diagram.
- 5. Attempt any TWO of the following :** **12**
- (a) Define logical and effective address. Describe physical address generation process in 8086. If DS = 345A H and SI = 13DC H. Calculate physical address.
 - (b) Explain the use of assembler directives :
 - (i) DW
 - (ii) EQU
 - (iii) ASSUME
 - (iv) OFFSET
 - (v) SEGMENT
 - (vi) EVEN
 - (c) Describe any four string instructions of 8086 assembly language.

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

- (a) Describe any 6 addressing modes of 8086 with one example of each,
 - (b) Select assembly language for each of the following :
 - (i) Rotate register BL right 4 times.
 - (ii) Multiply AL by 04 H
 - (iii) Signed division of AX by BL.
 - (iv) Move 2000 H in BX register.
 - (v) Increment the content of AX by 1.
 - (vi) Compare AX with BX.
 - (c) Write an ALP to reverse a string. Also draw flowchart for same.
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