22415

23242

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

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

(2) Answer each next main Question on a new page.

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

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

Marks

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

(a) List any four features of 8086.

(b) List any two addressing modes of 8086 with example.

(c) State the function of Assembler.

(d) Define Macro with Syntax.

(e) Describe the model of assembly language programming.

(f) List four machine control instructions.

(g) State the use of DAA instruction in BCD addition.

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

(a) Differentiate between NEAR and FAR procedure calls. (Any 4 points).

(b) Draw the flag register format of 8086 microprocessor and explain any two flags.

(c) Explain any two assembler directives with suitable example.

(d) Identify the addressing mode of the following instructions :

(i) MUL AL, BL (ii) MOV DX, 0040 H

(iii) MOV BX, [SI] (iv) MOV AX, [BX] [SI]

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

(a) Describe the concept of pipelining in 8086.

(b) Write an ALP for 8086 to multiply two 16 bit signed numbers.

(c) Write an ALP for 8086 to find largest number from an array of 10 numbers.

(d) Using MACRO write an ALP to solve $P = X^2 + Y^2$, where X and Y are 8 bit numbers.

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

(a) Draw functional block diagram of 8086 microprocessor.

(b) Write an ALP to sort 10 numbers in an array in descending order.

(c) Write an ALP to check given 16 bit number is odd or even.

(d) Write an ALP using procedure for performing the operation
$Z = (A + B) * (C + D)$.

(e) Explain re-entrant and recursive procedure with schematic diagram.

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

(a) Write the physical address generation process in 8086. Calculate the physical address for given –

(i) DS = 73A2 H SI = 3216 H

(ii) CS = 7370 H IP = 561E H

(b) Demonstrate in detail the program development steps in assembly language programming.

(c) Write assembly language instructions of 8086 microprocessor to –

(i) Add 100 H to contents of AX register.

(ii) Rotate the contents of AX towards left by 2 bits.

(iii) Signed division of AX by BL.

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

(a) Write the content of register BX after execution of instructions,

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MOV BX, 2050 H
MOV CL, 05 H
SHL BX, CL
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(b) Illustrate the use of any three branching instructions.

(c) Write an ALP to add the series of 5 numbers.
