17431

21718

3 Hours / 100 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.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following : **20**

(a) Draw the symbols used in a flowchart while developing ALP. Mention the use of each symbol. (any 4)

(b) State the function of the following pin of 8085 microprocessor :

(i) ALE

(ii) INTR and $\overline{\text{INTA}}$

(iii) $I_0/\overline{M}$

(iv) $\overline{\text{Reset IN}}$

(c) State the use of OF, TF, AF and PF flags in 8086.

(d) List of salient features of Intel 8085 Microprocessor.

(e) Write assembly language instruction of 8086 microprocessor to

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

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

(f) State the function of STC and CMC instruction of 8086.

(g) State the names of segment registers in 8086 microprocessor.

2. Attempt any FOUR of the following : **16**

(a) State all the control signals generated by S_0, S_1, S_2 with their functions.

(b) Name the general purpose register of 8086, give brief description of each.

(c) Compare 8085 microprocessor and 8086 microprocessor (with respect to)

(i) No. of data line

(ii) No. of address line

(iii) Frequency of operation.

(iv) Registers

(d) State function of following assembly language programming tool.

(i) Assembler

(ii) Linker

(e) Explain with suitable example the instruction given below :

(i) DAA

(ii) AAM

(f) What do you mean by procedure ? Explain re-entrant and recursive procedure.

3. Attempt any FOUR of the following : **16**

(a) Draw a neat labelled function block diagram of 8085. State the function of ALU.

(b) Differentiate between following instructions :

(i) ROL RCL

(ii) ADD ADC

(iii) MOV LXI

(iv) JMP JNC

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

(i) DT/ $\overline{R}$

(ii) NMI

(iii) $\overline{RD}$

(iv) $\overline{DEN}$

(d) Write an ALP to add 16 bit BCD number.

(e) Write an ALP to transfer a block of 10 data bytes using string instruction.

(f) Define MACRO with example.

4. Attempt any FOUR of the following : 16

(a) Identify the addressing modes for the following instruction :

(i) MOV CL, 34 H

(ii) MOV BX, [4172 H]

(iii) MOV DS, AX

(iv) MOV AX, [SI + BX + 04]

(b) List the steps in physical address generation in 8086 microprocessor. Calculate the physical address for the given CS = 3420H, IP = 689AH.

(c) With suitable example, explain following instruction :

(i) INC

(ii) XLAT

(iii) XCHG

(iv) AND

(d) Write an ALP for BCD to hex conversion.

(e) State the advantages of pipeline architecture.

(f) Write assembly language program to divide two 16 bit unsigned numbers.

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5. Attempt any FOUR of the following : **16**

(a) Explain CALL and RET instruction.

(b) Write an assembly language program to multiply two 8 bit number.

(c) Differentiate between minimum and maximum mode operation of 8086.

(d) Write an assembly language program to add the series of 5 number.

(e) Write a procedure to find factorial of a number.

(f) Describe various string instructions in brief.

6. Attempt any FOUR of the following : **16**

(a) Draw the timing diagram of minimum mode memory write cycle.

(b) Write an ALP to count the number of '1' in a 16 bit number. Assume the number to be stored in BX register. Store the result in CX register.

(c) Compare between JUMP and CALL instruction in 8086 microprocessor.

(d) Describe following assemble directive :

(i) DB

(ii) ASSUMS

(iii) SEGMENT

(iv) EQU

(e) How many times LOOP1 will be executed in following program ? What will be the contents of BL after the execution ?

```
        MOV BL, 00H
        MOV CL, 05H
LOOP1 : ADD BL, 02 H
        DEC CL
        JNZ LOOP1
```

(f) Differentiate between NEAR and FAR CALLS.