

17431

15116

3 Hours / 100 Marks

Seat No.

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- 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.

**Marks**

1. **Attempt any FIVE of the following :** **20**
- a) List any eight features of 8085 processor.
- b) State the functions of the following pin of 8086 microprocessor
- (i) ALE
- (ii)  $DT/\bar{R}$
- (iii) HOLD
- (iv)  $m/\bar{IO}$
- c) Name the different types of jump instructions used in 8086 assembly language program. (any eight)
- d) State the steps involved in program development.
- e) Write the program structure for writing program in assembly language with suitable comment.
- f) Define MACRO. List any four advantages of it.
- g) What do you mean by re-entrant procedures ? Write any assembly language program with re-entrant procedure.

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

- a) State the function of stack pointer and program counter in 8085 microprocessor.
- b) Draw a neat labelled Architectural diagram of 8085 microprocessor.
- c) Differentiate between minimum mode and maximum mode of 8086 microprocessor (Eight points).
- d) Describe the generation of physical address in 8086. If CS = 2000 H, and IP = 1122 H, calculate the physical address generation.
- e) State the functions of –
  - (i) Editor
  - (ii) Assembler
- f) What are assembler directives ? Explain any two assembler directives.

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

- a) Draw and explain the interfacing of 8284 clock generator with 8086 microprocessor.
- b) What is memory segmentation ? How it is done in 8086 microprocessor ?
- c) Identify the addressing modes in following instructions
  - (i) MUL AL, BL
  - (ii) MOV AX, 2100 H
  - (iii) MOV AL, DS : [SI]
  - (iv) MOV AX, BX.
- d) State and explain any four addressing modes of 8086 microprocessor with example.
- e) Write an ALP for 8086 to find the largest number in an array. [Assume array size of 10]
- f) Write an ALP for 8086 to perform BCD addition of two number [Assume suitable data]

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**Marks****4. Attempt any FOUR of the following :****16**

- a) Draw the architecture of 8086 microprocessor and state the function of BIU.
- b) List all the 16 bit registers of 8086 and write their function.
- c) Explain Near CALL and Far CALL procedure.
- d) Explain the following instructions of 8086
  - (i) DAA
  - (ii) XLAT
- e) Write an ALP for 8086 to count the number of odd numbers in array. [Assume array size of 20 number]
- f) Write an ALP to count the number of '1' in a number stored in accumulator.

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

- a)
  - (i) Draw flag register structure of 8086 and describe operation of each flag.
  - (ii) What is pipelining ? State its need and how it is done in 8086
- b) Write an ALP to sort a array of 10 numbers in Ascending order.
- c) Describe with suitable example how a parameter is passed on the stack in 8086 assembly language procedure.

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

- a) List the string related instructions of 8086 microprocessor and explain any two instructions.
  - b) Write the appropriate 8086 instructions to perform the following operation.
    - (i) Multiply AL register contents by 4 using shift instructions.
    - (ii) Move 2000 H into CS register.
  - c) Write an ALP for 8086 to multiply two 16 bit numbers.
  - d) Write an ALP to transfer a block of 50 numbers from 20000 H to 30000 H.
  - e) Write an ALP to multiply two 8 bit numbers using NEAR procedure.
  - f) What are the functions of CALL and RET instructions ?  
Write the syntax of CALL and RET instructions.
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