

22415

24225

3 Hours / 70 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.
 - (5) Assume suitable data, if necessary.

Marks

1. Attempt any FIVE of the following :

10

- (a) State the function of following pins of 8086 microprocessor :
 - (i) READY
 - (ii) HOLD
- (b) List assembly language programming tools.
- (c) Write any four flag manipulation instructions of 8086.
- (d) State any two differences between near and far procedure.
- (e) List directives used for MACRO.
- (f) Draw the flowchart for subtraction of two 16-bit numbers.
- (g) Differentiate between ROL and RCL.



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

- (a) Describe re-entrant and re-cursive procedure.
- (b) Draw the flag register format of 8086 microprocessor and explain any two flags.
- (c) Describe following assembler directives :
 - (i) DW
 - (ii) ENDP
 - (iii) EQU
 - (iv) SEGMENT
- (d) Write assembly language instructions of 8086 microprocessor to
 - (i) Signed division of AL and CL
 - (ii) Rotate AX to right through carry 3 times.
 - (iii) Multiply AL by 04H.
 - (iv) Load 4000H in DS register.

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

- (a) Describe concept of memory segmentation in 8086 microprocessor.
- (b) Write an assembly language program to subtract two BCD numbers.
- (c) Write an assembly language program to count number of 1's in a 16-bit number.
- (d) Write an assembly language program using MACRO to perform following operation : $Z = (A + B) * (C + D)$

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

- (a) Draw the functional block diagram of 8086 microprocessor.
- (b) Write an assembly language program to find length of the string.
- (c) Write an assembly language program to count even and odd numbers from an array of ten 8-bit numbers.
- (d) Describe any four bit-manipulation instructions of 8086 with suitable example.
- (e) Describe with suitable example the concept of parameter passing in procedure.

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

- (a) Calculate the physical address if :
 - (i) CS = 4200H and IP = CEO0H
 - (ii) SS = FE00H and SP = 0456H
 - (iii) DS = 2F00H and BX = 1A00HFor MOV AX, [BX]
- (b) Demonstrate in detail program development steps in assembly language programming.
- (c) State the addressing mode of following instructions :
 - (i) SUB BX, [4000H]
 - (ii) MOV AX, 1234H
 - (iii) ADD AX, [BX + SI + 20H]
 - (iv) MOV CX, BX
 - (v) DAA
 - (vi) MOV AL, [Si]

6. Attempt any TWO of the following :

12

- (a) Write an assembly language program for addition of five, 16-bit numbers using procedure.
 - (b) Explain the following instructions of 8086 :
 - (i) DAA
 - (ii) XLAT
 - (iii) XCHG
 - (c) Write an assembly language program for concatenation of two strings.
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