22415

23124

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.

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

Marks

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

(a) State the use of MN/$\overline{MX}$ and Test signal.

(b) List Assembly Language Programming tools.

(c) Write any four bit manipulation instructions of 8086.

(d) What is the use of AAM instruction with suitable example ?

(e) Give any two advantages of pipelining in 8086.

(f) Draw the format of flag register of 8086.

(g) Define procedure and write its syntax.

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

(a) Describe the function of the following instructions :

(i) DAA
(ii) CMP
(iii) ADC
(iv) JNC

(b) Explain Re-Entrant and Recursive Procedure with diagram.

(c) Write the function of following pins of 8086 :

(i) READY
(ii) ALE
(iii) $\overline{\text{TEST}}$
(iv) $\overline{\text{DEN}}$

(d) Draw and explain model of Assembly Language Programming.

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

(a) Describe memory segmentation in 8086 and list its advantages.

(b) Write an ALP to perform addition of two 16 bit BCD numbers.

(c) Write an ALP to find largest number in array of 5 elements.

(d) Describe CALL and RET instructions with example.

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

(a) Differentiate between Procedure and Macros.

(b) Write an ALP to find length of string.

(c) Explain the following assembler directives :

(i) DB

(ii) SEGMENT

(iii) DUP

(iv) EQU

(d) Write an ALP to count number '1' in 8 bit number.

(e) Explain any four Addressing Modes of 8086.

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

(a) Define Logical and Effective address. Describe how 20 bit Physical address is generated in 8086. If CS = 348AH and IP = 4214H, calculate the Physical Address.

(b) Select the instructions for each of the following :

(i) Multiply AL by 05H

(ii) Move 1234H in DS register

(iii) Add AX with BX

(iv) Signed Division of AX by BL

(v) Rotate the contents of AX towards left by 4 bits through carry

(vi) Load SP register with FF00H.

(c) Write an ALP for concatenation of two strings. Draw flow chart and assume suitable data.

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

(a) Draw the functional block diagram of 8086 with all labels.

(b) Explain with example any three Shift and any three Rotate instructions.

(c) Write an ALP for Z = (P + Q) * (R + S) using MACRO. Draw flow chart of the same.
