17431

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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. a) Attempt any SIX of the following: **12**

(i) Describe the four salient features of 8085.

(ii) State the functions of following pins of 8086.

1) ALE

2) $\overline{WR}$

(iii) Explain the functions of following instruction with one example

1) XLAT

2) LEA

(iv) Define the terms : algorithm and flowchart.

(v) List maskable and non-maskable interrupts of 8085.

(vi) List any four features of 8086.

Marks

(vii) State the functions of following directives

1) Pro C

2) END P

(viii) Compare the following 8086 instructions: AND and TEST (Any four points).

b) **Attempt any <u>TWO</u> of the following:** **8**

(i) Describe the functions of the following directives:

1) DD

2) DB

3) INCLUDE

4) DUP

(ii) Describe Linker and Debugger with respect to their functions and usages

(iii) Write an ALP to, find sum of 10 numbers. (Assume numbers as 8 bits).

2. Attempt any <u>FOUR</u> of the following: **16**

a) Draw the flag register of 8085 and explain the function of :

(i) Auxilliary carry flag and

(ii) Carry flag

b) Explain the concept of segmentation in 8086.

c) Name the general purpose registers of 8086 giving brief description of each.

d) Draw the neat labelled architecture of 8085.

e) Explain following addressing modes of 8086 with example.

(i) Implicit addressing mode

(ii) Immediate addressing mode

f) Compare minimum mode and maximum mode (Any four points)

Marks

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

a) List four machine control instructions and state their functions.

b) Describe how 20 bit physical address is formed in 8086 micro processors with one suitable example.

c) Draw and explain the architecture of 8288 Bus controller.

d) Explain any four rotation instructions with example.

e) Write an assembly language program to performe word by byte division of two unsigned number.

f) Draw the neat interfacing diagram in minimum mode of 8086.

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

a) With suitable example explain following instructions.

(i) DAA

(ii) ADC

(iii) MUL

(iv) XCHG

b) Write 8086 assembly language instruction for the following:

(i) Move 5000H to register D

(ii) Multiply AL by 05H

c) Write an ALP to perform addition of two 16 bit BCD number.

d) Describe the model of assembly language programming.

e) Write an ALP to count number of 1's in register DL.

f) What is recursive and re-entrant procedure.

Marks

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

a) Write an ALP to arrange five 8 bit numbers in ascending order.

b) Write an ALP to convert BCD to HEX.

c) Write an ALP to reverse a string of 8 characters.

d) State the function of following instruction of 8086

(i) STC

(ii) CMC

(iii) CLD

(iv) STI

e) What is meant by macro's? Describe their uses.

f) What is Procedure? What are the two advantages of using procedure in our program.

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

a) Draw the functional block diagram of 8086 microprocessor and describe instruction queue in detail.

b) Write an ALP to count odd number in an array of five 8 bit numbers.

c) Write an ALP using procedure for performing the operation
Z = (A + B) * (C + D)
A, B, C, D, are of 8 bit number. Draw flowchart and write result.
