Scheme G

Sample Test Paper-I

Course Name : Diploma in Computer Engineering Group

Course Code : CO/CD/CM/CW/IF

Semester   : Fourth

17431

Subject Title : Microprocessor and programming

Marks   : 25   **Time: 1 hour**

Instructions:

1. All questions are compulsory

2. Illustrate your answers with neat sketches wherever necessary

3. Figures to the right indicate full marks

4. Assume suitable data if necessary

5. Preferably, write the answers in sequential order

Q1. Attempt any THREE of the following: **9 Marks**

   a) Explain the function of following pins of 8085 processor

       i.ALE

      ii.HOLD

      iii.HLDA

   b) List any 6 features of 8086 microprocessor.

   c) Given SS: 3450H; SP: 2A56H, calculate the physical address.

   d) List any 2 addressing modes with example. Identify the addressing mode of the instruction MOV AL, [SI].

Q2. Attempt any TWO of the following   **8 Marks**

   a) Draw the internal architecture of 8086.

   b) Explain memory segmentation in 8086.

   c) Differentiate between minimum mode and maximum mode.

Q3. Attempt any TWO of the following   **8 Marks**

   a) Draw the flag register of 8086. Explain any 2 control flags.

   b) Draw the timing diagram for maximum mode memory read cycle.

   c) Explain the instructions of 8086

      i.   XLAT

      ii.   TEST

Sample Test Paper-II

Course Name : Diploma in Computer Engineering Group

Course Code : CO/CD/CM/CW/IF

Semester   : Fourth   **17431**

Subject Title : Microprocessor and programming

Marks   : 25   **Time: 1 hour**

Instructions:

1. All questions are compulsory
2. Illustrate your answers with neat sketches wherever necessary
3. Figures to the right indicate full marks
4. Assume suitable data if necessary
5. Preferably, write the answers in sequential order

Q.1 Attempt any THREE of the following: **9 Marks**

   a. Explain the following instructions

      i.   ROL

      ii.   MOVS

      iii.   STD

   b. Explain the assembler directives ASSUME, DW, EVEN.

   c. Write the code segment for adding two 16 bit numbers.

   d. Differentiate between FAR and NEAR calls (Any 3 points)

Q.2 Attempt any TWO of the following   **8 Marks**

   a. Explain Assembler and Linker.

   b. Explain Recursive procedure with example.

   c. Write an assembly language program to find the largest of 10 bytes.

Q.3 Attempt any TWO of the following   **8 Marks**

   a. Define Macro. Give an example and explain.

   b. Write an assembly language program to transfer block of data from one location to another.

   c. Write an assembly language program to convert HEX number to BCD.

Scheme G

Sample Question Paper

Course Name : Diploma in Computer Engineering Group

Course Code : CO/CD/CM/CW/IF

Semester   : Fourth   **17431**

Subject Title : Microprocessor and programming

Marks   : 100   Time: 3 hour

Instructions:

1. All questions are compulsory

2. Illustrate your answers with neat sketches wherever necessary

3. Figures to the right indicate full marks

4. Assume suitable data if necessary

5. Preferably, write the answers in sequential order

Q1. a) Attempt any SIX of the following: **12 Marks**

    a. State the functions of the following pins of 8085 microprocessor

       1) ALE   2)   IO/$\overline{\text{M}}$

    b. List all the 16 bit general purpose registers of 8086 microprocessor

    c. List any two addressing modes of 8086 with one example each.

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

    e. State two uses of Accumulator in 8085.

    f. State the use of OF and AC flags in 8086.

    g. Give the syntax for defining the Macro.

    h. Differentiate between SHR and ROR instructions of 8086. (2points)

Q1. b) Attempt any TWO of the following: **8 Marks**

    a. State the function of following assembly language programming tools.

       a. Editor

       b. Assembler

       c. Linker

       d. Debugger

b. Explain follwing assembler dirtecive

    a. ASSUME

    b. DB

    c. DUP

    d. ENDS

c. Differentiate between NEAR and FAR CALLs (4points)

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

a. Draw the flag register format of 8085 microprocessor and explain all the flags.

b. Draw the neat labeled architecture of 8086.

c. Explain how queuing speeds up the processing of 8086 operations.

d. List any 8 features of 8085 microprocessor.

e. What will be the contents of register BL after the last instruction execution?

    MOV BL, 14H

    MOV CL, 03H

    SHL BL,CL

f. List the steps in physical address generation in 8086 microprocessor. Calculate the physical address for the given CS = 2340H , IP = 76A9H

Q3. Attempt any FOUR of the following: 16 Marks

a. Explain the following instructions with one example each.

    1) ADD   2) AND   3) LEA   4) INC

b. State the functions for the following pins of 8086

    1.   NMI

    2. $\overline{BHE}$

    3. $\overline{TEST}$

    4. $\overline{DEN}$

c. Draw the interfacing diagram of octal latch and explain it.

d. List and explain any 4 flag manipulation instruction of 8086 microprocessor.

e. Write assembly language program for reversing the string.

f. Differentiate between 8085 and 8086. (Any 4 points)

Q4. Attempt any FOUR of the following: **16 Marks**

    a.   Identify the addressing modes for the following instructions:

        1) MOV CL, 34H

        2) MOV BX, [4172H]

        3) MOV DS, AX

        4) MOV AX, [SI + BX +04]

    b.   Explain the following instructions of 8086

        1) DAA   2) XLAT

    c.   Write an Assembly Language program to count the number of 1's in BL register.

    d.   Write assembly language program to multiply two 8 bit numbers.

    e.   Write assembly language program to add two BCD numbers.

    f.   Define Procedure and explain the directives used in Procedure.

Q5. Attempt any FOUR of the following: **16 Marks**

    a.   Write assembly language program to find the sum of 5 bytes of data.

    b.   How many times LOOP1 will be executed in the following program? What will be the contents of BL after the execution?

        MOV BL, 00H

        MOV CL, 05H

        LOOP1:   ADD BL, 02H

        DEC CL

        JNZ LOOP1

    c.   Write an Assembly Language program for BCD to Hex Conversion.

    d.   Write the appropriate 8086 instructions to perform the following operations:

        1) Multiply AL register contents by 4 using shift instruction

        2) Move 1234H into DS register.

    e.   Explain CALL and RET instructions.

    f.   Describe reentrant procedure with the help of schematic diagram.

Q6. Attempt any TWO of the following: **16 Marks**

    a.   Draw the timing diagram of minimum mode memory write cycle. Also explain the

same.

b. Write an Assembly Language program to transfer 10 bytes of data from one memory location to another. Also draw the flowchart for the same.

c. i) Define Macro. Give an example.

ii) Write a procedure to find the factoria