Scheme – I

Sample Question Paper

Program Name : **Computer Engineering Program Group**
Program Code : **CO/CM/CW**
Semester : **Fourth**
Course Title : **Microprocessors**
Marks : **70**

22415

Time: 3 Hrs.

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 FIVE of the following. **10 Marks**

a) State the function of ALE and Ready pin of 8086.
b) What is the role TEST instruction in Assembly language programming?
c) List the major steps in developing an Assembly language program.
d) Define Procedure and write its syntax.
e) Draw the flowchart for Multiplication of two 16 bit numbers.
f) What is stack? state its significance.
g) What is the use of REP in string related instruction?

Q.2) Attempt any THREE of the following. **12 Marks**

a) Give the difference between Inter segment and Intra segment CALL.
b) What is pipelining? How it improves the processing speed?
c) State the Assembler Directives used in 8086 programming and describe the function of any two.
d) Draw the Machine language instruction format for Register to Register transfer and state the function of each bit.

Q.3) Attempt any THREE of the following. **12 Marks**

a) Describe Memory segmentation in 8086 and list its advantages.
b) Write an ALP to perform 32 bit by 16-bit division of unsigned numbers.
c) Write an ALP to count number of '1' in 16-bit number.
d) Compare Procedure and macro based on i) length of code ii) generation of object code iii) Calling method iv) Passing parameter.

Q.4) Attempt any THREE of the following. 12 Marks

a) Draw and explain the flag register of 8086.
b) Write an ALP to count the number of positive and negative numbers in array.
c) Write an ALP to find the smallest number in the Array.
d) Write an ALP for addition of two 8 bit BCD numbers using MACRO.
e) Describe re-entrant and Recursive procedure with diagram.

Q.5) Attempt any TWO of the following. 12 Marks

a) Define logical and effective address. Describe physical address generation process in 8086.Calculate physical address by taking suitable DS, CS and IP.
b) Describe how an assembly language program is developed and debugged using system tools such as editors, assemblers, linkers and debuggers.
c) Describe any six Addressing modes of 8086 with suitable example.

Q.6) Attempt any TWO of the following. 12 Marks

a) With examples, describe any four String instructions in 8086 assembly language.
b) Select the instruction for each of the following
   i)Rotate register BH left 4 times.
   ii)Multiply AL by 08H.
   iii)Signed division of BL and AL.
   iv)Move 4000H in BX register.
   v)Load offset 1000H in register BX.
   vi)Rotate BX to left 4 times through carry.
c) Write an ALP for concatenation of two strings. Draw flowchart and assume suitable data.

Scheme – I

Sample Test Paper - I

Program Name : **Computer Engineering Program Group**
Program Code : **CO/CM/CW**
Semester : **Fourth**
Course Title : **Microprocessors**
Marks : **20**

22415

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 FOUR. **(08 Marks)**

a. State any four features of 8086.
b. Draw format of flag register of 8086.
c. What is queue in 8086?
d. What is the role of Assembler and linker?
e. State the function of XLAT instruction.
f. List any four Bit manipulation instructions of 8086.

Q.2 Attempt any THREE. **(12 Marks)**

a. Draw Architecture of microprocessor 8086 and label it.
b. Name the general purpose register of 8086 and describe their function.
c. Describe the function of following assembler directives: EQU, ENDP, DQ and EXTRN.
d. Describe the function of following instructions: AAA, CMP, ADC and LAHF
e. Describe any two Rotate instructions with example.

Scheme – I

Sample Test Paper - II

Program Name : **Computer Engineering Program Group**
Program Code : **CO/CM/CW**
Semester : **Fourth**
Course Title : **Microprocessors**
Marks : **20**

22415

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 FOUR. **(08 Marks)**

a. Define Macro.
b. How the Procedure is called form the main program?
c. Draw flowchart for the program to multiply AX by 6 using Shift instruction.
d. State the advantages and disadvantages of using Procedure.
e. What is the difference between Near and Far Procedure?
f. What do you mean by Recursive procedure?

Q.2 Attempt any THREE. **(12 Marks)**

a. Write an ALP to divide two 8 bit signed numbers.
b. Write an ALP to convert Hex number into its ASCII equivalent
c. Write an ALP for 32-bit subtraction.
d. Describe the Programming Model of 8086.
e. Compare PROCEDURE and MACRO.