CSE214 MICROPROCESSOR AND INTERFACING LAB

Cycle Sheet –I: Exploring ALP and 8086

Instructions to be followed:

a) Use MASM, Emulator and 8086 MP kit to execute the program

b) Execute various ways of performing the given program(use different address mode, carry flag, ASCII adjust and decimal adjust)

List of programs:

1. **Study Experiments**
   i) Study of 8086 Architecture
   ii) 8086 Addressing modes
   iii) 8086 Instruction set with Flag status

2. Write an 8086 based ALP to perform 8/16 bit arithmetic operations (ADD, SUB, MUL,IMUL,DIV&IDIV)
3. Write an 8086 based ALP to perform summations of N numbers in an array
4. Write an 8086 based ALP to find out factorial of a given hexadecimal number
   Sample I/O: OAH, OFH, 10H
5. Write an ALP to move block of data from locations 1200H-1205H to 2200H – 2205H
6. Write an 8086 based ALP to find Smallest and Largest value among 'N' numbers.

Cycle Sheet – II: Basic programs

Instructions to be followed:

a) Students can use either MASM or Emulator to execute the programs

List of programs:

7. Write an ALP to order given set of hexadecimal numbers in ascending and descending order. [**Sample I/O**: 0AH, 0FH, 0DH, 10H,02H]
8. Write an 8086 based ALP to perform Fibonacci series among N numbers
9. Write an 8086 based ALP to perform number conversations

   i) Hexadecimal number to binary [**Sample I/O**: ABH, CDH, 101H]

   ii) Binary number to hexadecimal [**Sample I/O**: 10101010_2,11111111_2,1100_2, 1111_2]

10. Write an ALP to perform searching an element in an array
11. Write an ALP to manipulate the string operation (eg: string Compare, string copy)
    Sample string: WELCOME

Cycle Sheet- III: 8086 based Applications

Instructions to be followed:

a) Students can use Emulator and 8086 MP kit to execute the programs

List of programs:

10. **Study Experiments**
    i) Study of 8255 – PPI
    ii) Study of 8279 – PKI
11. Write an ALP to generate waveform generation using 8255 PPI
12. Write an ALP to simulate Traffic light systems using 8255
13. Write an ALP to simulate stepper motor interface using 8255 PPI
14. Write an ALP to display the given message using 8279 PKI
    Message: COMPUTER SCIENCES
15. Write an ALP to interface analog to digital converter.

Optional Programs:

*+**System management**

1. Write an 8086 based ALP to read system date &Time/ system menu information.

***+File management**

2. Write an 8086 based ALP to Create/Delete/Rename/Copy a file

***+Directory management**

3. Write an 8086 based ALP to Create/Delete/Change a directory
4. **Study of Intel Atom processor**