Dhaka University of Engineering & Technology (DUET), Gazipur

Department of Computer Science and Engineering

Course Id & Title: CSE-3812 (Microprocessor and Assembly Language)

Final Lab Test Tasks

Instructions:

a. *Each Student has to choose 1 program each based on lottery*.
b. *Write the programs using EMU8086.*

1. Write an assembly language program that will display "Dhaka University of Engineering & Technology, Gazipur" and it's reverse string one after another for 10 times each (forward and reverse print) in total 20 (twenty times) in different lines with line feed.

2. Write an assembly language program that will take an Alphabet as an input (A~Z) or (a~z) and also take a given value N as input (0 to 9). Now, the output will show/display the N number after character.

   Sample Input / Output:

   Input Alphabet: A
   Given Value N: 3
   Output: D

3. Write an assembly language program that will accept an input string of 5 (five) letters in LOWERCASE from the keyboard and displays the string in reverse order in UPPERCASE in a new line.

   Sample Input / Output:

   Input: abcdef
   Output: FEDCBA

4. Write an assembly language program that will accept an input string of 5 (five) letters in UPPERCASE from the keyboard and displays the string in reverse order in LOWERCASE in a new line.

   Sample Input / Output:

   Input: ABCDEF
   Output: fedcba

5. Write an assembly language program that will accept an input of 5 (five) digits from the keyboard and finds the LARGEST and SMALLEST digits and displays those in new lines.

   Sample Input / Output:

   Input: 1 2 3 4 5
   Output: Largest: 5
   Smallest: 1

6. Write an assembly language program that will accept an input of 5 (five) digits (0 to 9) from the keyboard and finds the summation and average of the summation of the digits and displays those in new lines. If the Sum and Average values are higher than 9 then store that results in two variables named SUM and AVERAGE.

   Sample Input / Output:

   Input: 1 2 3 4 5
   Output: Sum: 15
   Average: 3

7. Write an assembly language program that will accept an input digit N (0 to 9) from the keyboard and finds the even digits upto N, summation of the sequence of even digits 0+2+4+6…..+N upto N and average of the summation and displays those in new lines. If the Sum and Average values are higher than 9 then store that results in two variables named SUM and AVERAGE.

   Sample Input / Output:

   Input: 9
   Output: Even Digits: 0 2 4 6 8
   Sum: 20
   Average: 4

8. Write an assembly language program that will accept an input digit N (0 to 9) from the keyboard and finds the odd digits upto N, summation of the sequence of odd digits 1+3+5+7…..+N upto N and average of the summation and displays those in new lines. If the Sum and Average values are higher than 9 then store that results in two variables named SUM and AVERAGE.
   Sample Input / Output:
   Input: 9
   Output: Odd Digits: 1 3 5 7 9
   Sum: 25
   Average: 5

9. Write an assembly language program that will accept an input of 8 (eight) digits (0 to 9) from the keyboard randomly and finds the prime digits.
   Sample Input / Output:
   Input: 2 4 7 5 6 1 8 3
   Output: Primes Digits: 2 3 5 7

10. Write an assembly language program that will accept an input of 5 (five) digits (0 to 9) from the keyboard and finds the summation of the digits. If the Sum value is higher than 9 then store that results in a variable named SUM.
    Sample Input / Output:
    Input: 1 2 3 4 5
    Output: Sum: F

11. Write an assembly language program that will accept an input of 2 (two) digits (0 to 9) from the keyboard randomly and finds the *Greatest Common Divisor* of two digits.
    Sample Input / Output:
    Input: 2 3 Input: 2 4
    Output: GCD: 1 Output: GCD: 2

12. Write an assembly language program that inputs a single character, considering ASCII value of that character find that whether that ASCII value is even or odd. For EVEN value print "E" and for ODD value print "O"
    Sample Input / Output:
    Input: A Input: 0
    Output: O Output: E
    (hint: Ascii value of A is 65) (hint: Ascii value of 0 is 48)

13. Write an assembly language program that will accept an input of 8 (eight) digits (0 to 9) from the keyboard randomly and sorts them in ascending order.
    Sample Input / Output:
    Input: 2 4 3 5 6 1 8 3
    Output: 1 2 3 3 4 5 6 8

14. Write an assembly language program that will accept an input of 8 (eight) digits (0 to 9) from the keyboard randomly and sorts them in descending order.
    Sample Input / Output:
    Input: 2 4 3 5 6 1 8 3
    Output: 8 6 5 4 3 3 2 1

15. Write an assembly language program that will accept an input of 8 (eight) digits (0 to 9) from the keyboard randomly and finds the non-prime digits.
    Sample Input / Output:
    Input: 2 4 7 5 6 1 8 3
    Output: Non-Prime Digits: 1 4 6 8