

## Second Assignment

Subject: Introduction to Computer Programming (CS-111)

Sem: First Sem BS(ICAS)

Max. Marks: 05M

Note: All questions carry 5M each.

1.a) Briefly explain jumps in loop with an example.

1.b) Write a C/C++ program to determine the frequency of occurrence of individual digits in a given number.

1.c) Write the syntax of do statement and explain with an example. [2+2+1=5M]

2.a) Design a function to determine the GCD and LCM of two integers. Write a C/C++ program to test the function with values 18 and 24.

2.b) Write a C/C++ program to calculate the sum of N terms of the following series.  
 $\sin x = x - x^3/3! + x^5/5! - x^7/7! + \dots$

2.c) Briefly explain categories of function with an example. [2+1+2=5M]

3.a) Write a C/C++ program for removing the duplicate elements in an array.

3.b) Write a program that fills a 5x5 matrix as follows:

i) Upper left triangle with +1s

ii) Lower triangle with -1s

iii) Right to left diagonal with zeros

iv) Display the content of matrix not more than two 'cout' statements.

3.c) Write a C/C++ program to determine sum of second diagonal elements and norm of a given 3x3 matrix. [1+2+2=5M]

4.a) Character strings in C/C++ are automatically terminated by null character. Explain how this feature helps in string manipulations.

4.b) Write a C/C++ program for counting a words in a text. [1+2+2=5M]

4.c) Write a C/C++ program that would sort a list of names in alphabetical order.

5.a) What are objects? How they are created? Explain with an example.

5.b) Write the class definition for a Date class that contains three private integer data members: month, day, and year. Create a static member to hold a slash. Create two public member functions, setDate() and showDate(). You will use the static slash in the showDate() function. The setDate() function accepts three integer arguments and passes them on to three private functions, setMonth(), setDay(), and setYear(). If a month is greater than 12, then set it to 12. If a day is greater than 31, then set it to 31. Write a main() function that instantiates several objects of the Date class and tests the member functions.

5.c) What is object-oriented programming? How is it different from the procedure-oriented programming? Explain with an example. [1+2+2=5M]