2012
B.Sc. (Hons.) Bio-Informatics
Third Semester
BIN-3005: Object Oriented Programming in C++

Time allowed: 3 Hours                                          Max. Marks: 60

*NOTE:* Attempt <u>five</u> questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

1. Attempt the following:-
   a) How data hiding is implemented in OOPS?
   b) Why Inline functions are called macros?
   c) Name some operators that can't be overloaded.
   d) What is Containership?
   e) What is the use of 'THIS' pointer?
   f) Explain Pure Virtual Functions.
   g) What is a linked list? What are the ways of implementing linked list?
   h) What is meant by ofstream in C++?

                                                                    (8x1.5)

## UNIT-1

2. a) List the pros and cons of object oriented programming over the structured programming.
   b) What is friend class? What are the access control a friend class has over the member function?
   c) What is a reference variable? How it is different from pointer variable.
                                                                (04+04+04)

3. a) What is operator overloading? Explain rules to follow for operator overloading. Write a C++ program to divide two complex numbers using binary operator overloading.
   b) What is inheritance? What are different types of inheritance? Explain multiple inheritances with C++ program?
                                                                    (06+06)

4. a) What is inline function? When will you make a function inline and why?
   b) What is function overloading? Write a C++ program to find the square of a given number which belongs to integers, floating point and double precision using function overloading.
   c) Differentiate between Data abstraction and Data encapsulation.
                                                                (04+06+02)

## UNIT-II

5. a) What is polymorphism? How polymorphism is achieved at Compile time and Run time?
   b) What is a virtual function and what are the advantages of declaring a virtual function in a program?
   c) Write a C++ program to generate the following series of numbers using polymorphism.

   1
   1    2
   1    2    3
   1    2    3    4

                                                                (04+04+04)

P.T.O.

6. a) What are the various file opening modes in C++? What are *get* and *put* pointers? What functions are used to manipulate these pointers?

   b) Write a program that prompts the user to input name of a text file, read this file and output the number of vowels and number of words in the text.

   c) What is exception handling? How it is implemented in C++.

   (05+05+02)

7. a) What do you mean by Linked list? Explain the concept of insertion and deletion of nodes in linked list with C++ program.

   b) What is stack? Write C++ program for implementation of stack using array.

   c) Write a C++ program for bubble sort.

   (05+04+03)

*x-x-x*