INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE

SCHOOL OF MATHEMATICAL & COMPUTATIONAL SCIENCES

PG - I (SMCS), Autumn Semester 2022-23

Instructor: **Debarshi Kumar Sanyal** Assignment Number: **5**

Course: **COM 4111: Object-Oriented Programming with C++** Date: **Oct 31, 2022**

Problem 1 Declare a class `Complex` to model a complex number. Use operator overloading to support addition, subtraction and multiplication of complex numbers. Overload the operator `>` using a non-member function that returns `true` iff the real part of the 1st number is greater than the real part of the 2nd number, and the imaginary parts of both the numbers are zero. [`complex2.cpp`]

Problem 2 Suppose `IntContainer` is a class that models an array of integers. Suppose `ic` is an object of class `IntContainer`. You want to increase the values of all the elements in the array in `ic` by 1 by simply writing `ic+=1;`. Support the `+=`, `-=`, and prefix and postfix increment and decrement operators using operator overloading. [`IntContainer.cpp`]

Problem 3 Suppose `IntObject` is a class that models an integer and `DoubleObject` is a class that models a double. You are required to support conversion operators that can convert an `IntObject` to an `int` and a `DoubleObject` to a `double`. Also support a conversion operator in `DoubleObject` to convert a `DoubleObject` to an `IntObject`. Assume that `IntObject` does not have a constructor to construct an `IntObject` from a `DoubleObject`. [`IntDoubleObj.cpp`]