Assignment 3: Function and Operator Overloading

Course Title: Object Oriented Programming

Course Code: CC-112

Total Marks: 20

Submission Deadline: 28-06-2025

CLOs Assessed: CLO-2, CLO-3

Instructor: Syed Hamed Raza

Objective:

This assignment is designed to help students:
- Understand the concept and utility of function and operator overloading.
- Implement polymorphic behavior in C++ using function and operator overloading.
- Analyze and compare overloaded functions/operators with regular ones.

Instructions:

- Submit your work as a single `.cpp` file and a brief report (PDF format).
- Include proper comments in the code.
- Academic honesty must be maintained.

Part A – Function Overloading [10 Marks]

1. Theory (2 Marks):

   Explain function overloading in C++ with an example from real life (e.g., printing different types of documents).

2. Programming (8 Marks):

   Implement a C++ program that overloads a function named `display` to:
   - Display an integer.
   - Display a float.
   - Display a string.

   Demonstrate how each overloaded version is invoked.

Part B – Operator Overloading [10 Marks]

1. Theory (2 Marks):

   Discuss the need for operator overloading. Give an example where overloading makes code more intuitive.

2. Programming (8 Marks):

Create a class `Complex` with real and imaginary parts. Overload the `+` operator to add two complex numbers.
Also, overload the `<<` operator to display a complex number in proper format.