Bangladesh University of Business & Technology (BUBT)

Department of Computer Science and Engineering

Lab Final Examination: Spring 2023 (Bi –Semester)

Course Code: CSE 122 | Course Title: Object Oriented Programming

Intake: 50th, Program: B.Sc in CSE

Time– 2 hours **Marks – 40**

[Answer all the questions]

CO2 1. (a) *Manchester United* is a class with two private integer member variables *coach* and *player*, and a public void member function getData (). Create an object named '*ronaldo*' in the main function. **Overload** the operator '++' in this class to perform the increment of both member variables through the following instruction ronaldo++ from the main function. After that create another instance of the *Manchester United* class named '*fernandes*'. Now, you set the values of coach and player for *ronaldo* to 4 and 5, and for *fernandes*, it is 5 and 6. Overloading only one relational operator, compare the result of *ronaldo* with *fernandes* before and after incrementing *ronaldo* by one. Which operator will be appropriate for both cases? **Support** your explanation by implementing that operator. [20]

CO3 2. Suppose there are three classes named "*Germany*", "*Argentina*" and "*Brasil*". **Build** a diagram to show how these classes are related. What do you need to do to hide the implementation details of the parent class obtained from the diagram? **Demonstrate** the scenario with the help of an array of pointers. [10]

CO3 3. (a) **Create** an object of the *Pakistan* class in the main function. **Identify** the consequences through this object for the following two cases. [10]

```
#include<iostream>
using namespace std;

class Zimbabwe
{
public:
   int chatara1;
protected:
   int raza2;
private:
   int ervine3;
};
```

Case 1:

```
class Pakistan: private Zimbabwe
{
   public:
   int getchatara1()
   {
      chatara1 = 1;
      return chatara1;
   }
   int getervine3()
   {
      ervine3 = 3;
      return ervine3;
   }
};
```

Case 2:

```
class Pakistan: public Zimbabwe
{
   protected:
   int getchatara1()
   {
      chatara1 = 1;
      return chatara1;
   }
   int getraza2()
   {
      raza2 = 2;
      return raza2;
   }
};
```