**AMERICAN INTERNATIONAL UNIVERSITY BANGLADESH**

**FACULTY IF SCIENCE AND TECHNOLOGY**

**DEPARTMENT OF COMPUTER SCIENCE**

**C++ PROBLEMS**

**Problem 1:**

Write a Program that has a class named as **ITEMS**. Attributes and Methods of ITEMS are shown below:

int itemCode; float itemPrice; (private member data)

public methods/functions:

**int setItemCode(int iCode)**

{//Complete the method to set the item code.

}

**float setItemPrice(float iPrice)**

{//Complete the method to set the item price.

}

**void showItem(void) (public method)**

{//Complete the method to print the item details

}

Write the main() of the program. In the main(), create an object named as order and access the public methods mentioned in the class above.

**Problem 2:**

Create the 3 classes which will have the following members:

**Shape**: **Private**: int height, width

**Public**: Create necessary setter and getter functions to set and get the private values

**Rectangle**: **Public**: write a function to calculate the area of the rectangle

**Triangle**: **Public**: write a function to calculate the area of the rectangle

Remember that you can only create object of Rectangle and Triangle class. By this objects you have to set all the values of each shape and calculate their area. In output section you need to show height, width and area of a shape.

Take all information as user input and for formatted input.

**Problem 3:**

Write a program to design a **student** class representing student roll no and name. A **test** class (derived class of student) represents the scores of the **student** in various subjects and **sports** class representing the score in sports of the student.

Now, write constructors for all the classes in a way that the constructors initialize the variables of the classes. Also create different show functions to give output of all the information of the respective classes.

In main function create objects of the derived classes and also show all the information of those objects.

**Problem 4:**

Create a base class called **building** that stores the number of floors a building has, the number of rooms and its total square footage.

Create a derived class called **house** that inherits the building and also stores the number of bedrooms and the number of bathrooms.

Next, create another derived class called **office** which also inherits the building class and stores the number of fire extinguishers and number of telephones.

Now, write constructors for all the classes in a way that the constructors initialize the variables of the classes. Also create different show functions to give output of all the information of the respective classes.

In main function create objects of the derived classes and also show all the information of those objects.