REGENT UNIVERSITY

COLLEGE OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND ENGINEERING

END OF SEMESTER EXAMINATION

EXAMINATION PAPER

SICS 152: OBJECT ORIENTED PROGRAMMING USING C++

DATE: 16TH NOVEMBER 2007

TIME ALLOWED: 2 HOURS

EXAM MATERIAL PROVIDED: NONE

INSTRUCTIONS: *ATTEMPT ALL QUESTIONS*

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Attempt all questions.

1. Answer **True** or **False** for (a) to (j) **[10 marks]**
   a. The value of the expression 13%4 is 3
   b. A **do**-loop is executed at least once
   c. `int hour; hour = "12";` generates a compiler error
   d. `int boys[5]; int b = boys[5];` is valid code
   e. In using a object oriented languages like C++ we can define our own data types.
   f. In a structure members are **public** by default
   g. Data members of a class must be declared **private**
   h. In a class members are **private** by default
   i. Members declared as **private** in a class are accessible to all the member functions of that class.
   j. A class constructor has the **int** return type by default

2. Fill in the blanks (write answer in your answering booklet) **[10 marks]**
   a. The wrapping up of data and functions into a single unit is called .....
   b. The process by which objects of one class acquire the attributes of objects of another class is known as .....
   c. Every C++ statement ends with a .....
   d. Every C++ program begins execution at the function .....
   e. A function that has return type ..... does not return anything
   f. Member functions of a class are normally declared as .....
   g. A constructor's name is the same as .....
   h. In designing with inheritance, attributes common to classes are normally moved higher up the .....
   i. The elements of an array of size 10 are numbered from ..... to .....
   j. A function prototype tells the compiler the return type, name and .....

3. Implement the following class diagram using the C++ language. **[20 marks]**
   (Properly indent and adequately comment your code. **main** function not required)

Student
- firstname : string - lastname : string - age : int - indexNo : string + fees : double
+ Student ( ) + setName (string fn, string ln) : void + getAge ( ) : int + setAge (int a) : void + setIndexNo (string index) : void

4. Below are two classes with common attributes. **[30 marks]**
   Using the diagram below modify the classes taking following into consideration.
   a. Fully implement a base class Account
   b. Fully re-implement the Savings and Checking class.

Fully implement all the member functions.
(Fill in with the appropriate code to offer
functionality as name implies)

```
class Savings{
      private:
         int accNo;
         double accBalance;
         double interestRate;
      public:
      Savings();
      void Deposit(double deposit
      void Withdraw(double amt);
      double getBalance();
};
```

```
class Checking{
    private:
       int accNo;
       double accBalance;
    public:
      Checking();
      void Deposit(double deposit)
      void CashCheque(double amt);
      double getBalance();
};
```