THE OPEN UNIVERSITY OF SRI LANKA
B.SC. DEGREE PROGRAMME: LEVEL 05
CLOSED BOOK TEST 2005/2006

CSU 3279-OBJECT ORIENTED PROGRAMMING

DURATION: 1 $^{1}/_{2}$ HOURS

Date: 12/09/2006 *Time: 3.30 pm–5.00 pm*

Answer All Questions.

Question 1

(i). What are ***storage classes***? Briefly explain using an example.

(ii). Distinguish between the **structure** data type and **other** data type.

(iii). Define a *structure template* to store the information of an employee in ABC company. It should include the following information.

- employee no.
- name of the employee
- monthly salary of the employee

(a) Suppose that there are 15 executive employees and 150 non-executive employees appointed for a new foreign project of that company. How would you declare a structure to store this information?

(b) Write C++ codes to read employee (executive and non-executive) information into the structure declared above.

Question 2

(i). Describe the differences between a **struct** and a **class**.

(ii). Define the terms Object, Class, Abstraction, Inheritance and Polymorphism in terms of Object-Oriented programming.

(iii). What do you mean by *information hiding*? Explain using an example.

(iv). What do you mean by "function overloading"? Explain very clearly, using an example.

(v). Create a C++ class to represent a person with attributes of name, year of birth and height in meters.

(a) Define methods to set these three attributes.

(b) Add a method which will return a person's (approximate) age when the year of birth is passed as a parameter.

(c) Add another method which will return the person's height in centimeters.

Question 3

State whether the following statements are TRUE or FALSE.

(a). The return type of a function is 'int' by default.

(b). A class can have many constructors.

(c). Member functions defined inside a class become **inline** functions by default.

(d). Data members in a class must always be private.

(e). An abstract data type defines the attributes and methods of all objects belonging to a particular 'class'.

(f). The 'constructor' method creates an object by reserving memory space for it, it may also perform other programmer-defined tasks.

(g). A friend function is called like x.f(), while a member function is called like f(x).

(h). Dynamic objects are instantiated using pointers of the class type.

(i). Pointers may be redirected to different objects of the class or to NULL.

(j). Class attributes are visible to both class methods and object methods.