ROLL NO. _____

Code: CS23 Subject: OBJECT ORIENTED PROGRAMMING USING C++

ALCCS – OLD SCHEME

Time: 3 Hours **AUGUST 2012** **Max. Marks: 100**

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE:

- **Question 1 is compulsory and carries 28 marks. Answer any FOUR questions from the rest. Marks are indicated against each question.**
- **Parts of a question should be answered at the same place.**

Q.1 a. What are the characteristics of Object Oriented programming language?

b. What is pure virtual function? How is it implemented in C++?

c. Explain how we implement exception handling in C++.

d. What restrictions apply to constructors and destructors?

e. Define operation overloading with the help of an example.

f. How does copy constructor differ from a constructor?

g. When do you use 'this' pointer? **(7×4)**

Q.2 a. Write a program where numbers are stored in an array in a program. Create two files even and odd using command line argument, where odd file stores all odd numbers in the array and even file stores all even numbers in the array. **(9)**

b. Define String Class. Overload == operator to compare two strings. **(9)**

Q.3 a. What does polymorphism mean in C++ language? How is polymorphism achieved at (i) runtime and (ii) compile time? Explain with the help of examples. **(6)**

b. What is a virtual base class? When do we make class virtual? **(6)**

c. What is friend class and friend functions? Why are they used? **(6)**

Q.4 a. Write a program to overload operator '<=', to compare the length of two strings. **(9)**

b. Differentiate between private, public and protected access modifiers. Also explain their meaning when a derived class inherits from a base class using public, protected and private keywords. Give examples. **(9)**

Q.5 a. Define exception. What is exception specification? When is it used? **(6)**

b. Write a program that write to and read from the disk files using class object. **(6)**

c. Why are virtual constructors not supported in C++? Justify. **(6)**

Q.6 a. Write a class COMPLEX in C++. It has two members of type integer. One for real part and other for imaginary part. Also write functions that can overload assignment and increment operator both prefix and suffix. **(10)**

b. Mention six differences between a structure and a class in C++. **(8)**

Q.7 Write short notes on the following:

(i) Abstraction **(6)**
(ii) Inheritance **(6)**
(iii) Polymorphism **(6)**