No. of Printed Pages : 3

**BCS-031**

# BACHELOR OF COMPUTER APPLICATIONS (BCA) (Revised)

## Term-End Examination

08135

## December, 2016

## BCS-031 : PROGRAMMING IN C++

*Time : 3 hours* *Maximum Marks : 100*

*(Weightage : 75%)*

***Note :*** *Question no. 1 is* ***compulsory*** *and carries 40 marks. Attempt any* ***three*** *questions from the rest.*

**1.** (a) Explain the basic features of an object-oriented language. Why did people change over from structured programming to object-oriented programming ? *8*

(b) Abstract class provides a base upon which other classes may be built. Justify the above statement with the help of an example. *5*

(c) What do you mean by inheritance ? Explain the advantages of using multiple inheritance in C++ with the help of an example. *7*

(d) Explain the importance of a constructor in object-oriented programming. Differentiate between copy constructor and default constructor in C++ with the help of an example. *7*

(e) What is function overloading ? Give its advantages in a C++ program. Also write a C++ program to show function overloading. *7*

(f) How does a virtual function differ from a pure virtual function ? Also give an example of a pure virtual function. *6*

**2.** (a) What is exception handling ? What is the sequence of events when an exception occurs ? Write a C++ program that uses exception handling to handle the errors caused, when a number is divided by zero. *10*

(b) Differentiate among private, public and protected access modifiers. Also explain their meaning when a derived class inherits from a base class using public, protected or private keywords, with the help of an example. *10*

**3.** (a) Write a program to add two complex numbers by using binary operator overloading. Write comments in the program wherever it is required, to give more clarity to the program. *10*

(b) Write a program in C++ to calculate the factorial of a given number. 5

(c) Explain the association of dynamic binding and run-time polymorphism, with example. 5

4. (a) How is unformatted I/O different from formatted I/O ? Explain. 5

(b) Write a C++ program to create a Book class. Define constructor and destructor for this class. Also define the methods to show the title and price of the books. 7

(c) Explain the use of the following operators in C++ : 8

(i) &

(ii) ?:

(iii) ::

(iv) &&

5. Write short notes on the following : 4×5=20

(a) New and Delete Operator

(b) Parameterized Constructor

(c) Class Template

(d) Pure Virtual Function