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BCS-031

DIPLOMA IN CIVIL ENGINEERING

00379

Term-End Examination

December, 2012

BCS-031 : PROGRAMMING IN C++

Time : 2 hours *Maximum Marks : 100*

(Weightage 75%)

*Note : Question number 1 is **compulsory** and carries 40 marks. Attempt **any three** questions from the rest.*

1. (a) Explain features of structured programming paradigm in brief. Also list its advantages and disadvantages with respect to Object Oriented Paradigm. 6

   (b) What is encapsulation ? Explain how it is different from information hiding with the help of an example program to manage Books issue and return in a Library. 8

   (c) What is data type ? List any four built in data types and their size in C++. Also explain need of derived data type in C++ programming. 6

   (d) What is an object ? Explain how objects in C++ are created and destroyed, with the help of program to create Bank-Account Class, having data members name, account-number, balance and member function display balance. 8

(e) Explain the concept of copy constructor with the help of an example program. 6

(f) What is function template ? Write a function template SUM to add two numbers. 6

2. (a) Write a program in C++, which take two 3×3 matrices as input and find sum of them. Implement suitable constructor and destructor for this program. 10

(b) What is message passing ? Explain how message passing is used in C++ programming with an example. 10

3. (a) What is access control specifier ? Explain the need of different access control specifiers with example. 5

(b) What is constructor ? Explain advantage of constructor with the help of an example. 5

(c) Write a C++ program to create a class Book, to keep the records of books available in your library. This program should have proper constructor and member functions, to get the details such as publisher, author and price etc. of the books. Make necessary assumptions where ever required. 10

4. (a) Explain need of operator overloading. Also explain why some operators can not be overloaded ? Write a C++ program to overload '+' operator to add two character strings. **10**

(b) What is data stream ? Explain stream hierarchy in C++. **5**

(c) What is friend function ? Explain its advantage with the help of an example. **5**

5. (a) What is polymorphism ? Explain advantage of polymorphism. Also write a C++ program to explain use of virtual function. **10**

(b) What is exception ? Explain how exception handling is done in C++ with the help of a program. Also describe *what* will happen if an exception is thrown out side of a try block and *why* ? **10**