

**BACHELOR OF COMPUTER APPLICATIONS
(BCA) (Revised)**

Term-End Examination

December, 2015

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) What is structured programming ? Write the disadvantages of structured programming. 5
- (b) How do you input non-graphic characters in the C++ programming language ? What do these escape sequences represent ? 5
 - (i) \n
 - (ii) \a
 - (iii) \v
- (c) Write a C++ program to demonstrate the use of switch statement. 5
- (d) Write the appropriate statements to create a function template printarray that can display the values contained in array passed as parameter to the function. The function must be able to accept integer, float and character arrays as arguments. 10

- (e) Describe the concept of classes and objects through examples. 5
- (f) What are Container Classes ? List the different types of containers and give three examples of each. 5
- (g) List any five common examples of exceptions. 5

2. (a) Consider an example of declaring the examination result of BCA students of IGNOU. Design three classes : Student, Exam and Result. The Student class has data members such as those representing roll no., name, etc.

Create the class Exam by inheriting Student class. The Exam class adds fields representing the marks scored in 6 subjects.

Derive the Result from the Exam class, and it has its own fields such as total marks.

Write an interactive program to model this relationship by showing the three classes. Also, show how you can print out the values of each member of these classes. $10+5=15$

- (b) Define member function. Explain the purpose of member function. 5

3. (a) Define friend function. Discuss memory requirements for classes, objects, data members and member functions with an example. 10
- (b) Write a C++ program to print Student details : Student Name, Father's Name, Mother's Name, Student Address, Zip code, Student Roll No. using constructor and destructor. 10
4. (a) Explain briefly the importance of pure virtual function in the software development paradigm. Write a C++ program with abstract class having pure virtual function. 10
- (b) Explain exceptions in C++ program through an example. 10
5. (a) Explain Inheritance and Multi-Inheritance with an example. Write a C++ program which has Inheritance and Multi-Inheritance. 10
- (b) Define Operator Overloading. Write the general rules for Operator Overloading. 10
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