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**BCS-031**

**BACHELOR OF COMPUTER  
APPLICATIONS (BCA)**

**Term-End Examination**

**December, 2023**

**BCS-031 : PROGRAMMING IN C++**

*Time : 3 Hours*

*Maximum Marks : 100*

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**Note :** (i) *Question No. 1 is compulsory and carries 40 marks.*

(ii) *Attempt any **three** questions from the rest.*

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1. (a) What is inheritance ? Explain *three* different types of inheritance. 5
- (b) What is an exception ? How is exception handled in C++ ? Explain with example. 5
- (c) What is operator overloading ? Explain its advantages. 5

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- (d) Explain the process of memory de-allocation in C++ with the help of an example. 5
- (e) Explain the working of GOTO statement. Does its usage violate the rules of OOP ? Explain. 5
- (f) Explain the use of List container with the help of a program. 5
- (g) Explain the role of destructor in C++ programming with the help of a program. 5
- (h) Briefly describe rules of operator overloading in C++. 5
2. (a) Differentiate between abstraction and encapsulation with an example. 5
- (b) Write a C++ program to find whether a given number is odd or even. 5
- (c) What is access specifier in C++ ? Briefly explain its different types. 5
- (d) What is constructor overloading ? Explain with the help of an example. 5

3. (a) What is concept of reusability ? Explain how this concept is implemented in C++. 5
- (b) What is multiple inheritance ? What are its drawbacks ? Explain with the help of an example. 5
- (c) For classes in inheritance hierarchy, discuss the order of constructor and destructor call with the help of a program. 5
- (d) What is friend function ? Explain the advantage of friend function. 5
4. (a) Explain the term polymorphism. Explain the types of polymorphism supported by C++. 5
- (b) What is function overriding ? With the help of program, illustrate the concept of function overloading. 5
- (c) What is abstract class ? How is abstract class implemented in C++ ? Explain with the help of a program. 5
- (d) What is the purpose of static keyword in C++ ? What happens when it is appended before a variable in C++ ? Explain. 5

5. (a) Explain use of do---while loop with the help of a program. 5
- (b) Explain the concept of class template. What is the advantage of using a template? 5
- (c) What is virtual function ? Explain the need of virtual function. 5
- (d) What design concepts you would keep in mind while designing an object oriented application? Explain with an example. 5