BCS–031

BACHELOR OF COMPUTER APPLICATIONS (REVISED)

(BCA)

Term-End Examination

June, 2025

BCS-031 : PROGRAMMING IN C++

Time : 3 Hours   *Maximum Marks : 100*

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

1. (a) List any *five* features of object oriented programming. Also, compare object oriented programming with procedural programming.   5

(b) What do you understand by scope of a variable ? Compare global variable and local variable in C++, with suitable example code.   5

(c) What are the static members of a class ? Discuss the utility of having static members with the help of an example. 5

(d) What is Standard Template Library (STL) ? Briefly discuss the components of STL.   5

(e) Compare virtual functions with pure virtual functions. Give an example of each.   5

(f) What is operator overloading ? Write a program in C++ to overload '+' operator to add two complex numbers.   5

(g) What are destructors in C++ ? Explain the role of destructors in memory management with suitable example code in C++. 5

(h) What is polymorphism ? Give advantages of polymorphism. 5

2. (a) What are stream manipulators ? Explain the use of setw() and setprecision() as a stream manipulation. 5

(b) Explain, how constructor overloading is performed in C++ with the help of an example. 5

(c) What are inline functions ? Discuss the utility of inline functions with suitable example. 5

(d) What is an access specifier ? Explain different types of access specifiers available in C++. 5

3. (a) Write a program in C++ to define a class "Teacher" with a virtual function "Salary". Derive the class "Assistant Professor" from the class "Teacher" and implement the salary function. Make necessary assumptions. 10

(b) What is inheritance in C++ ? Explain different types of inheritance in C++. 10

4. (a) Write a program in C++ to open an existing file and insert the text "file program in C++" at the end of the file.

10

(b) What is 'this' pointer in C++ ? Explain the significance of 'this' pointer with the help of an example program. 5

(c) Differentiate between early binding and late binding with an example for each.   5

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

   (a) Class template and its utility

   (b) Exception handling and its purpose

   (c) Copy constructor and its utility

   (d) Multiple inheritance

   (e) Containers and their utility in C++

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