

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

Term-End Examination

December, 2024

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) "A class is a way to accomplish data hiding." Comment with a suitable example.
5
- (b) What do you mean by abstract class ?
Explain with the help of an example. 5
- (c) List and explain various access-specifiers in C++ and also mention the accessibility rules pertaining to data and its member functions. 5

- (d) What is **this** pointer ? What happens on the statement : “delete this” in a class ? 5
 - (e) Explain any *five* operators among relational and logical operators used in C++ along with an example for each. 5
 - (f) What are exceptions ? Explain the try and catch structure with suitable code in C++.5
 - (g) Write a short note on array of objects with example. 5
 - (h) List different types of inheritance. Also discuss multiple inheritance. 5
2. (a) Distinguish between the overloaded function and function template with the help of a suitable program. 5
- (b) Explain Reference Variable with an example. What is the principle reason of passing arguments by Reference ? Differentiate between passing arguments by using pointer variables and reference variables. Explain with a C++ program. 10

- (c) What are virtual functions ? How do virtual functions differ from pure virtual functions ? 5
3. (a) What is the friend function ? Compare friend function with a member function. Write a program to add two instances of distance class (having data members kilometres and metres). Make use of a friend function for the same. The class should make use of parameterized construct for creating and initializing the data members. 10
- (b) Create a class named employee. Allow multiple constructors in it. Create methods to generate salary report of each employee. The program in C++ should display the details of 5 employees. 10
4. (a) Write a program to overload input and output operators for data class having data members as dd,mm,yy. 10
- (b) What is the difference between member function defined inside and outside the

body of a class ? How are inline member functions defined outside the body of a class ? Explain with example. 10

5. (a) Explain various modes in which a file can be opened. Explain the working of seekg(), seekp(), tellg(), tellp(), read(), write() functions in istream classes. 10
- (b) What do you mean by template class ? Write a generic class to sort an array into ascending order. 10

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