Roll No. .....

97675

BCA 3 years 4th Semester

Examination – May - 2025

OBJECT ORIENTED PROGRAMMING USING C++

Paper : BCA-208

Time : Three **hours**] *[Maximum Marks : 80*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : There shall be 9 questions. Question Number 1 will be ***compulsory*** and in addition to the ***compulsory*** question, students have to attempt ***four*** more questions selecting ***one*** from each Unit. All questions shall carry equal marks.

1. (a) What is iterator ? 8 × 2 = 16

(b) What are hashes ?

(c) What is Ambiguity in Inheritance ?

(d) What is Private Inheritance ?

(e) What is delete keyword ?

(f) What is member function ?

(g) What is data type ?

(h) What is polymorphism ?

UNIT – I

2. What is the difference between Procedural Programming and Object-Oriented Programming approaches ? What are the key characteristics of Object-Oriented Programming (OOP) ? Explain. 16

3. What are the fundamental concepts of flow control, recursion, arrays, pointer in OOPs ? How are each of these used in program development ? Provide examples where applicable. 16

UNIT – II

4. Differentiate between constructor and destructor with suitable examples. Write a program to show how both are invoked. Explain. 16

5. (a) What are the common memory management problems in C++ (e.g., memory leaks, double deletion, dangling pointers) ? Explain with example. 10

(b) What is a static member in object-oriented programming ? How does it differ from non-static members ? Explain its use with a suitable example. 6

UNIT – III

6. (a) How can function overloading be implemented in C++ ? Write a program to demonstrate function overloading with appropriate examples. 10

(b) What is polymorphism in object-oriented programming ? Differentiate between compile-time and run-time polymorphism, and explain each with suitable examples 6

7. (a) What is multiple inheritance in object-oriented programming ? Explain the concept with a simple program example 10

(b) What is a virtual function in object oriented programming ? How does it support runtime polymorphism ? Explain. 6

UNIT – IV

8. Explain the concept of templates in C++. How do function templates differ from class templates ? Provide examples to support your explanation. 16

9. Discuss the use of the following features in C++ with suitable examples : template functions, namespaces, strings, iterators, hash containers, iostreams, and other standard types. 16