

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 ? $8 \times 2 = 16$
(b) What are hashes ?

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- (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

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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

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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