

BCA/OOP : 303 (O)



2025

(3rd Semester)

BACHELOR OF COMPUTER APPLICATIONS

Paper : OOP : 303 (Old Course)

(**Object-Oriented Programming with C++**)

Full Marks : 70

Pass Marks : 45%

Time : 3 hours

(PART : B—DESCRIPTIVE)

(Marks : 45)

*The figures in the margin indicate full marks
for the questions*

1. (a) What is C++? What are the advantages
of C++? 1+3=4
- (b) Explain the fundamental principles of
object-oriented programming with
suitable examples. 5

Or

- (c) What is the OOP paradigm and how
does it differ from traditional paradigms? 4

- (d) Explain the major application areas of OOP. 3
- (e) State two major criteria for evaluating software. 2
2. (a) Explain type casting in C++ with examples of implicit and explicit type casting. 4
- (b) Discuss the use of memory management operators in C++. Give examples. 4
- (c) Explain the concept of tokens in C++. 1
- Or*
- (d) Explain function prototyping and its importance in C++. Give an example. 3
- (e) Explain function overloading and inline functions in C++ with examples. 5
- (f) What are reference variables? 1
3. (a) Explain how objects can be passed as function arguments. Illustrate with an example. 4
- (b) Write a C++ program implementing pointer arithmetic. 3
- (c) What are static data member and static member function in a class? 2

Or

- (d) Explain operator overloading. Write a program to overload the + operator. $1+3=4$
- (e) What is a copy constructor? Write a program to demonstrate its use. $1+2=3$
- (f) Explain the concept of a class and an object. 2
4. (a) What is multilevel inheritance? Explain with a suitable diagram and program. $1+1+3=5$
- (b) What are virtual base classes? How do they solve the diamond problem? Explain. $1+3=4$
- Or
- (c) Define pure virtual functions. How do they create abstract classes? Explain with example. $1+1+3=5$
- (d) Explain the concept of pointers to derived classes. Why are they important in polymorphism? $2+2=4$
5. (a) Explain the hierarchy of C++ stream classes. 3
- (b) Explain `setw()`, `setprecision()` and `setfill()`. 3

- (c) Differentiate between `get()`/`put()` and `read()`/`write()` functions. 3

Or

- (d) What is file handling in C++? 2
- (e) Write a C++ program to illustrate opening and closing a file. 4
- (f) Write a C++ program using `getline()` function. 3

★ ★ ★

2 0 2 5

(3rd Semester)

BACHELOR OF COMPUTER APPLICATIONS

Paper : OOP : 303 (Old Course)

(Object-Oriented Programming with C++)

(PART : A—OBJECTIVE)

(Marks : 25)

The figures in the margin indicate full marks for the questions

SECTION—I

(Marks : 10)

Put a Tick (✓) mark against the correct answer in the
brackets provided : 1×10=10

1. Which feature of OOP indicates code reusability?

(a) Abstraction ()

(b) Polymorphism ()

(c) Encapsulation ()

(d) Inheritance ()

2. In which access should a constructor be defined, so that object of the class can be created in any function?

(a) Any access specifier will work ()

(b) Private ()

(c) Public ()

(d) Protected ()

3. Where is the memory allocated for the objects?

(a) Cache ()

(b) ROM ()

(c) HDD ()

(d) RAM ()

4. Which of the following is an abstract datatype?

(a) int ()

(b) float ()

(c) class ()

(d) string ()

5. The 'this pointer' is accessible

- (a) within all the member functions of the class ()
- (b) only within functions returning void ()
- (c) only within non-static functions ()
- (d) within the member functions with zero arguments ()

6. If a friend overloaded operator have to be changed to member overloaded operator, which operator should be used with the class name?

- (a) Scope resolution operator ()
- (b) Colon ()
- (c) Arrow operator ()
- (d) Dot operator ()

7. What is default access specifier for data members or member functions declared within a class without any specifier in C++?

- (a) Private ()
- (b) Protected ()
- (c) Public ()
- (d) Depends on compiler ()

8. What is the return type of a constructor?

(a) void ()

(b) int ()

(c) The same as the class type ()

(d) Constructors do not have a return type ()

9. To perform input/output operations in C++, which header file should be included?

(a) <iostream> ()

(b) <iomanip> ()

(c) <fstream> ()

(d) <sstream> ()

10. What is the use of IO class?

(a) To handle all the input operations ()

(b) To handle all the output operations ()

(c) To handle all the input and output operations ()

(d) To handle all the input and output to the standard input ()

SECTION—II

(Marks : 5)

State whether the following statements are *True (T)* or *False (F)* by putting a Tick (✓) mark : 1×5=5

1. Data members and member functions of a class are private by default.

(T / F)

2. The new operator in C++ is used to deallocate dynamically allocated memory.

(T / F)

3. Copy constructors are overloaded constructors.

(T / F)

4. The eof() function returns true as soon as the end of a file is reached during a read operation.

(T / F)

5. Object cannot be passed as a function.

(T / F)

SECTION—III

(Marks : 10)

Answer the following questions :

2×5=10

1. What are two significant benefits of using an OOP approach in software development?

2. What is the purpose of the #include <iostream> directive?

3. What is a class in C++ and how is it used to create an object?

4. What are static binding and dynamic binding?

5. Explain the roles of the `fail()` and `bad()` functions.
