



**BCA/OOP : 303 (O)**

**2024**

**( 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) Explain about object-oriented programming (OOP). Also, list some of the advantages and applications of OOP. 6

(b) Explain briefly about output operator with an example. 3

*Or*

(c) Explain the terms class, data abstraction and encapsulation and message passing with an example. 6

- (d) Draw only the structure of a C++ program and write a syntax for compiling of a C++ program. 3
2. (a) What is meant by function overloading? Write a C++ program to find the volume of any 3 shapes (like cube, cuboid, cylinder) using the concept of function overloading. 6
- (b) Explain memory management operators in C++ with an example. 3
- Or*
- (c) Explain call by reference mechanism and inline function concepts with an example program. 6
- (d) Write a C++ program to calculate the factorial of a given number using 'goto' statement. 3
3. (a) Write a C++ program to implement static data members and static member functions. Also, explain how memory allocation will be done. 6
- (b) What are the limitations of C-structure? Briefly explain about array of objects. 3

Or

- (c) Define constructor. What is meant by the copy constructor? Explain it with an example program. 6
- (d) Briefly explain about pointer arithmetic. 3
4. (a) Define inheritance. Explain in detail about single inheritance, multilevel inheritance and virtual base classes with example. 9
- Or
- (b) What is the need for using constructors in derived classes? Additionally, create a C++ program to demonstrate the implementation of constructors in derived classes. 6
- (c) Explain run-time polymorphism with an example. 3
5. (a) Explain put(), get(), getline() and write() functions (w.r.t. unformatted I/O operations) with example. 6
- (b) Write about any two C++ stream classes for console I/O operations. 3

( 4 )

Or

- (c) Mention some of the file stream classes and explain about open() and close() file functions with example. 6
- (d) Write a short note on error handling during file operations. 3

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**( 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*

- A.** Choose the most appropriate answer from the given options by putting a Tick (✓) mark in the brackets provided : 1×10=10

1. Which of the following is an example for pure (or complete) object-oriented programming language?

(a) C            (    )

(b) C++            (    )

(c) FORTRAN            (    )

(d) JAVA            (    )

2. What is the output of the following program?

```
#include<iostream>
using namespace std;
int y=1000;
int main() {
    int y=100;
    {
        int y=10;
    }
    cout <<y<<"H"<<::y;
    return 0;
}
```

- (a) 10 1000 ( )
- (b) 10 100 ( )
- (c) 100 1000 ( )
- (d) 1000 10 ( )

3. What is the output of the following program?

```
#include <iostream>
using namespace std;
int main()
{
    int y=5, z=2, w=10, v;
    v=w<<y%z/w;
    cout <<v;
    return 0;
}
```

- (a) 5 ( )
- (b) 10 ( )
- (c) 20 ( )
- (d) Error ( )

4. Which of the following is derived data type in C++?
- (a) Array ( )
  - (b) Pointer ( )
  - (c) Reference ( )
  - (d) All of the above ( )
5. What is the syntax of defining a destructor of class A?
- (a) A() {} ( )
  - (b) ~ A() {} ( )
  - (c) A :: A() {} ( )
  - (d) ~ A() {};; ( )
6. Where can the default parameter be placed by the user?
- (a) Leftmost ( )
  - (b) Rightmost ( )
  - (c) Both leftmost and rightmost ( )
  - (d) Topmost ( )

7. Which of the following statements is correct?

- (a) Base class pointer object can't point to a derived class object. ( )
- (b) A derived class can't have pointer objects. ( )
- (c) Derived class pointer object can't point to a base class object. ( )
- (d) A base class can't have pointer objects. ( )

8. Which of the following cannot be a friend?

- (a) Function ( )
- (b) Class ( )
- (c) Object ( )
- (d) Operator function ( )

9. Which of the following operators cannot be overloaded?

(a) `? :` ( )

(b) `+` ( )

(c) `-` ( )

(d) `==` ( )

10. Which header file is required to use file I/O operations?

(a) `<fstream>` ( )

(b) `<ostream>` ( )

(c) `<ifstream>` ( )

(d) `<iostream>` ( )

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

1. 'Static' is a keyword in both C and C++ languages.

( T / F )

2. The scope and lifetime of a global variable are the entire program/file.

( T / F )

3. A non-member function can access private data of the class.

( T / F )

4. We can derive a class from a base class even if the base class's source code is not available.

( T / F )

5. By default, all the files in C++ are opened in text mode.

( T / F )

C. Answer the following questions in short :  $2 \times 5 = 10$

1. What is meant by procedure-oriented programming? List any two example languages of it.

2. Explain 'enum' keyword with an example.

3. What are the rules for overloading operators?

4. Write about any four rules for virtual functions.

5. Write about input and output streams.

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