TOTAL PAGES: 2

**22MAU411N**

# PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

## BSc DEGREE EXAMINATION DECEMBER 2025
(Fourth Semester)

Branch - **MATHEMATICS**

## C++ PROGRAMMING

Time: Three Hours

Maximum: 75 Marks

**SECTION-A (10 Marks)**

Answer **ALL** questions

**ALL** questions carry **EQUAL** marks (10 × 1 = 10)

| Module No. | Question No. | Question | K Level | CO |
|---|---|---|---|---|
| 1 | 1 | Which of the following is NOT a basic concept of OOP?<br>a) Polymorphism b) Inheritance<br>c) Encapsulation d) Compilation | K1 | CO1 |
| | 2 | What does the term "object" refer to in OOP?<br>a) A block of memory b) An instance of a class<br>c) A data type d) A program file | K2 | CO1 |
| 2 | 3 | Which of these is NOT a derived data type?<br>a) Array b) Function<br>c) Pointer d) int | K1 | CO2 |
| | 4 | What does the term "manipulators" in C++ refer to?<br>a) Functions for typecasting b) Preprocessor directives<br>c) Functions to format output d) Debugging tools | K2 | CO2 |
| 3 | 5 | What is the advantage of passing arguments by reference?<br>a) Reduces memory overhead<br>b) Prevents changes to arguments<br>c) Allocates new memory for arguments<br>d) Increases program size | K1 | CO3 |
| | 6 | Which function prototype is valid in C++?<br>a) int fun(a, b); b) int fun(int, int);<br>c) int fun(int a; int b); d) int fun(int a, int b) | K2 | CO3 |
| 4 | 7 | Which of these constructors initializes objects dynamically?<br>a) Default constructor b) Dynamic constructor<br>c) Copy constructor d) Parameterized constructor | K1 | CO4 |
| | 8 | How many objects can a destructor destroy?<br>a) Only one b) Depends on the program<br>c) All objects of the same type<br>d) Only dynamically allocated objects | K2 | CO4 |
| 5 | 9 | What does the eof() function do in file handling?<br>a) Closes the file<br>b) Returns true when the end of the file is reached<br>c) Checks if the file exists<br>d) Deletes the contents of the file | K1 | CO5 |
| | 10 | Which file mode is used to append data to an existing file?<br>a) ios::trunc b) ios::app<br>c) ios::binary d) ios::ate | K2 | CO5 |

**Cont...**

## SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 × 7 = 35)

| Module No. | Question No. | Question | K Level | CO |
|---|---|---|---|---|
| 1 | 11.a. | Discuss the features of object-oriented programming in detail. | K2 | CO1 |
| | | (OR) | | |
| | 11.b. | Write a simple C++ program that demonstrates the use of classes. | | |
| 2 | 12.a. | Explain operator precedence and provide an example. | K3 | CO2 |
| | | (OR) | | |
| | 12.b. | Discuss the significance of manipulators in C++ with examples. | | |
| 3 | 13.a. | Explain default arguments in functions with an example. | K4 | CO3 |
| | | (OR) | | |
| | 13.b. | Discuss the use of pointers in classes with an example. | | |
| 4 | 14.a. | What are multiple constructors in a class? Explain with an example. | K3 | CO4 |
| | | (OR) | | |
| | 14.b. | Write a note on overloading unary operators with an example. | | |
| 5 | 15.a. | Write about opening and closing files in C++ with an example. | K4 | CO5 |
| | | (OR) | | |
| | 15.b. | Explain hierarchical inheritance with a suitable program. | | |

## SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks (3 × 10 = 30)

| Module No. | Question No. | Question | K Level | CO |
|---|---|---|---|---|
| 1 | 16 | Explain the concepts and benefits of OOP with an example program. | K4 | CO1 |
| 2 | 17 | Write in detail about expressions and implicit conversions in C++. | K4 | CO2 |
| 3 | 18 | Explain the concept of nesting of member functions with a program. | K4 | CO3 |
| 4 | 19 | Write a C++ program to demonstrate manipulation of strings using operators and explain the rules for overloading operators. | K4 | CO4 |
| 5 | 20 | Explain the concept of file handling in C++ with examples for file modes, file pointers, and sequential input/output operations. | K4 | CO5 |

Z-Z-Z END