(6 pages)

S.No. 4413 **NSIT 2**

(For candidates admitted from 2018–2019 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Part III — Information Technology — Major

PROGRAMMING IN C++

Time : Three hours Maximum : 100 marks

SECTION A — (10 × 2 = 20)

Answer ALL the questions.

1. Which manipulators are used to provide spaces and positioning decimal point? Give the output of i=i++ + ++i ,if is assigned with value 7.

2. How will you convert from one data type to another? Give example.

3. Write a recursive C++ coding segment to find SUM = ((1) + (1+2) + (1+2+3) + ...N times).

4. Create a class and object for Book Sales management.

5. Create a class with constructor for addition and subtraction of two variables.

6. Give the syntax of operator overloading. List out the operators which cannot be overloaded.

7. Define Abstract Base Class.

8. Write the code to open and read the content of the text file.

9. Write the output for the following code.

Choose the right output for the following program
#include<iostream> using namespace std;

```
main( ) {
    const int a = 10; a++;
    cout<<a; }
```

10. What should be the output for the fbllowing code?

```
include <iostream>
using namespace std;
int main( ) {
string s1 = "PSG"
string s3, s2 = "ICS",
s3=s1+s2; int loc = s3.find("c");
cout<< loc }
```

SECTION B — (5 × 6 = 30)

Answer ALL questions, choosing either (a) or (b) in each.

11. (a) Summarize the Key concepts of Object-Oriented Programming.

Or

(b) Write Short Notes on

(i) User-defined Manipulators and

(ii) Manipulators with Parameters.

12. (a) Write a C++ Program for Addition of members of two different classes using friend Function.

Or

(b) Elucidate about Constructors and Destructors with Example Program.

13. (a) Write a C++ program to add two complex number by Using the concept of Operator Overloading Using member function [(a+ib)+(c+id) = ((a+c) +i(b+d)].

Or

(b) Explain about the inheritance and its types in detail. Illustrate with example.

14. (a) Illustrate about the working of Virtual functions with example.

Or

(b) Explain about the File Opening Modes with example.

15. (a) Write a C++ Program to find the maximum element of an array Using function template.

Or

(b) Discuss about the Exception handling mechanism with example Program.

SECTION C — (5 × 10 = 50)

Answer ALL the questions choosing either (a) or (b) in each.

16. (a) Explain the following

(i) OOPS Concepts

(ii) Advantages of OOPS.

Or

(b) Write a detailed note on I/O Manipulators.

17. (a) Define function overloading. Write a C++ program to define three overloaded functions to find Maximum from an array, to find maximum from two arrays and to find maximum from three arrays.

Or

(b) List the characteristics of a constructor Write a C++ program to define a copy constructor with default values.

18. (a) Explain how private members can be accessed by Pointers.

Or

(b) What are the types of inheritance? Give examples for each.

19. (a) Elucidate on formatted and unformatted I/O Operations.

Or

(b) Elaborate on Virtual Base classes Write examples.

20. (a) Differentiate Random file access from Sequential file access. Write an example program in C++ to Copy contents of a file to another file.

Or

(b) Elaborate on Principles of Exception handling.
