





**Unit - 1**

2. Answer **any four** questions :

- (a) What is object-oriented programming? Distinguish between data abstraction and data encapsulation in object-oriented programming. 1+4
- (b) Write a C++ program to calculate the variance and standard deviation of N numbers. Use the formula  $\text{Mean} = \bar{x} = \frac{1}{N} \sum_{i=1}^N x_i$  Variance =  $\frac{1}{N} \sum_{i=0}^N (x_i - \bar{x})^2$   
Standard Deviation =  $\sqrt{\frac{1}{N} \sum_{i=0}^N (x_i - \bar{x})^2}$  5
- (c) Write 5 differences between C and C++. 5
- (d) Write a C++ program swapping two numbers using pointers. 5
- (e) Define an array. Explain types of arrays with example. 2+3
- (f) What is the difference between pointers to constants and constant pointers? Give examples. 5
- (g) Explain enumeration data type with an example. 5

**Unit - 2**

3. Answer **any four** questions :

- (a) Write a C++ program to set number of precision points. Display the results of  $\sqrt{7}$  in different precision settings from precision 10 to 1. 5
- (b) Write a C++ program to find the octal representation of a given positive number. 5
- (c) List out the types of Inheritance. Discuss in detail about any two Inheritance concepts with an example program. 5
- (d) What is polymorphism? Explain different types of polymorphism. 2+3
- (e) What is friend function and friend class and what are the merits and demerits? 2+3
- (f) Write a C++ program to implement binary operator overloading over '+' operator to add two complex numbers. 5
- (g) What is the output of the code? 5

```
# include <iostream>
using namespace std;
class cons
{
public:
    int m;
    void init ()
    {
```

**Please Turn Over**

```

        m = 80; }
    cons ()
    {
        init (); }
};

int main ()
{
    cons S;
    cout << S.m; }

```

### Unit - 3

4. Answer **any four** questions :

- (a) Write a C++ program to arrange N integers in descending order. 5
- (b) What is the need of using function templates? How will you create and use the function template? 1+2+2
- (c) Write a C++ program to generate fibonacci numbers using copy constructor. 5
- (d) Write a program to create a template to find the maximum value stored in an array. 5
- (e) Explain how to handle exceptions using try, catch and throw mechanism. 5
- (f) Predict the output of the following code : 5

```

# include <iostream>
using namespace std;
namespace a_name_space{
int fl(int a, int b)
{
    int c = a+b;
    cout << c << " "; }
}
name space b_name_space{
    int fl (int a, int b)
    {
        int c = a-b;
        cout << c << " "; }
    }
int main ()
{
    a_name_space :: fl (2, 2);
    b_name_space :: fl (1, 1);
}

```

- (g) Write a C++ program to find the HCF and LCM of three positive integers. 5
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