MODULE: 4.1 (C++ Basic)  
• WAP to print “Hello World” using C++

• What is OOP? List OOP concepts

Object-oriented programming is based on the concept of objects. In object-oriented programming data structures, or objects are defined, each with its own properties or attributes. Each object can also contain its own procedures or methods.

List of oops concept are:

**Class,Object,Inheritance,Polymorphism,Abstraction,Data encapsulation.**

• What is the difference between OOP and POP?

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| **Parameters** | **OOP** | **POP** |
|  | ***Basic Definition*** | OOP is object-oriented. | POP is structure or procedure-oriented. |
|  | ***Program Division*** | The program is divided into objects. | The program is divided into functions. |
|  | ***Approach*** | Bottom-Up approach | Top-down approach |
|  | ***Data Control*** | Data in each object is controlled on its own. | Every function has different data, so there’s no control over it. |
|  | ***Entity Linkage*** | Object functions are linked through message passing. | Parts of a program are linked through parameter passing. |
|  | ***Expansion*** | Adding new data and functions is easy. | Expanding data and function is not easy. |
|  | ***Inheritance*** | Inheritance is supported in three modes: public, private & protected. | Inheritance is not supported. |
|  | ***Access control*** | Access control is done with access modifiers. | No access modifiers supported. |
|  | ***Data Hiding*** | Data can be hidden using Encapsulation. | No data hiding. Data is accessible globally. |
|  | ***Overloading or Polymorphism*** | Overloading functions, constructors, and operators are done. | Overloading is not possible. |
|  | ***Friend function*** | Classes or functions can be linked using the keyword “friend, only in C++. | No friend function. |
|  | ***Virtual classes or functions*** | The virtual function appears during inheritance. | No virtual classes or functions. |
|  | ***Code Reusability*** | The existing code can be reused. | No code reusability. |
|  | ***Problem Solving*** | Used for solving big problems. | Not suitable for solving big problems. |
|  | ***Example*** | C++, JAVA, VB.NET, C#.NET. | C, VB, FORTRAN, Pascal |

MODULE: 4.2 (Programing with C++)  
• WAP to create simple calculator using class  
• Define a class to represent a bank account. Include the following members:  
1. Data Member:  
-Name of the depositor  
-Account Number  
-Type of Account  
-Balance amount in the account

2. Member Functions  
-To assign values  
-To deposited an amount  
-To withdraw an amount after checking balance  
-To display name and balance  
• Write a program to find the multiplication values and the cubic values using  
inline function  
• Write a program of Addition, Subtraction, Division, Multiplication using  
constructor.  
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constructor.  
• Assume a class cricketer is declared. Declare a derived class batsman from  
cricketer. Data member of batsman. Total runs, Average runs and best  
performance. Member functions input data, calculate average runs, Display  
data. (Single Inheritance)  
• Create a class person having members name and age. Derive a class student  
having member percentage. Derive another class teacher having member  
salary. Write necessary member function to initialize, read and write data.  
Write also Main function (Multiple Inheritance)  
• Assume that the test results of a batch of students are stored in three different  
classes. Class Students are storing the roll number. Class Test stores the marks  
obtained in two subjects and class result contains the total marks obtained in  
the test. The class result can inherit the details of the marks obtained in the  
test and roll number of students. (Multilevel Inheritance)  
• Write a program to Mathematic operation like Addition, Subtraction,  
Multiplication, Division Of two number using different parameters and  
Function Overloading  
• Write a Program of Two 1D Matrix Addition using Operator Overloading  
• Write a program to concatenate the two strings using Operator Overloading

• Write a program to calculate the area of circle, rectangle and triangle using  
Function Overloading  
¬ Rectangle: Area \* breadth  
¬ Triangle: ½ \*Area\* breadth  
¬ Circle: Pi \* Area \*Area  
• Write a program to swap the two numbers using friend function without  
using third variable  
• Write a program to find the max number from given two numbers using  
friend function  
MODULE: 4.2 (C, C++ Templates)  
• Write a program of to swap the two values using templates  
• Write a program of to sort the array using templates.