CREATIVE DESIGN & MULTIMEDIA INSTITUTE

1.What is the difference between C and C++?

C	C++
C is a procedure-oriented programming language.	C++ is an object-oriented programming language.
C does not support data hiding.	Data is hidden by encapsulation to ensure that data structures and operators are used as intended.
C is a subset of C++	C++ is a superset of C.
Function and operator overloading are not supported in C	Function and operator overloading is supported in C++

2. What are class in C++?

A class is a user-defined data type that has data members and member functions. Data members are the data variables and member functions are the functions that are used to perform operations on these variables.

3. What is polymorphism in C++?

Polymorphism in simple means having many forms. Its behavior is different in different situations. And this occurs when we have multiple classes that are related to each other by inheritance.

For example, think of a base class called a car that has a method called car brand(). Derived classes of cars could be Mercedes, BMW, Audi - And they also have their own implementation of a cars

4. Explain constructor in C++?

The constructor is a member function that is executed automatically whenever an object is created. Constructors have the same name as the class of which they are members so that compiler knows that the member function is a constructor. And no return type is used for constructors.

5.How many types of polymorphism?

Two types polymorphism available in c++

1.compile time Polymorphism

2. Runtime Polymorphism

6. What are the C++ access specifiers?

Public: All data members and member functions are accessible outside the class.

Protected: All data members and member functions are accessible inside the class and to the derived class.

Private: All data members and member functions are not accessible outside the class.

7. What do you mean by abstraction in C++?

Abstraction is the process of showing the essential details to the user and hiding the details which we don't want to show to the user or hiding the details which are irrelevant to a particular user.

8. Is destructor overloading possible? If yes then explain and if no then why?

No destructor overloading is not possible. Destructors take no arguments, so there's only one way to destroy an object. That's the reason destructor overloading is not possible.

9. What are destructors in C++?

A constructor is automatically called when an object is first created. Similarly when an object is destroyed a

function called destructor automatically gets called. A destructor has the same name as the constructor (which is the same as the class name) but is preceded by a tilde.

10. What are the static members ?

When a variable in a class is declared static, space for it is allocated for the lifetime of the program. No matter how many objects of that class have been created, there is only one copy of the static member. So same static member can be accessed by all the objects of that class.

11. Explain inheritance.

Inheritance is the process of creating new classes, called derived classes, from existing classes. These existing classes are called base classes. The derived classes inherit all the capabilities of the base class but can add new features and refinements of their own.

12. Explain Features of oops:

Data abstraction: Data hiding

Inheritance: Reusability

Polymorphism: Object to take many forms

Encapsulation: Data hiding

13. C++ uses which approach?

C++ is an object oriented language and it uses bottom-up approach.

14. Which of the following is "address of operator"?.

& is used to denote the address of operator.

15. Total types of constructors in C++?

There are three types of constructors in C++ -.default Constructor, parameterized constructor and copy constructor.

16. What is the number of parameters that a default constructors requires ?

Default constructor does not require any parameter.

17. Data member and member function of a class are private by default.true or false?

True.Data members and member functions of a class are always private by default.

18. Difference between equal to (==) and assignment operator(=)?

The equal to operator == checks whether two values are equal or not. If equal, then it's true; otherwise, it will return false.

The assignment operator = allots the value of the right-side expression to the left operand.

19. What are the advantages of C++?

C++ is a highly portable language means that the software developed using C++ language can run on any platform.

C++ is an object-oriented programming language which includes the concepts such as classes, objects, inheritance, polymorphism, abstraction.

C++ has the concept of inheritance. Through inheritance, one can eliminate the redundant code and can reuse the existing classes.

Data hiding helps the programmer to build secure programs so that the program cannot be attacked by the invaders.

Message passing is a technique used for communication between the objects.

C++ contains a rich function library.

20. Runtime polymorphism

Runtime polymorphism is also known as dynamic polymorphism. Function overriding is an example of runtime polymorphism.

21. Compile polymorphism

Compile-time polymorphism is also known as static polymorphism. The polymorphism which is implemented at the compile time is known as compile-time polymorphism. Method overloading is an example of compile-time polymorphism.

22. Who was the creator of C++?

Bjarne Stroustrup.

23. Define friend function.

Friend function acts as a friend of the class. It can access the private and protected members of the class. The friend function is not a member of the class, but it must be listed in the class definition. The non-member function cannot access the private data of the class. Sometimes, it is necessary for the non-member function to access the data. The friend function is a non-member function and has the ability to access the private data of the class.

24.What is a virtual function?

A virtual function is used to replace the implementation provided by the base class. The replacement is always called whenever the object in question is actually of the derived class, even if the object is accessed by a base pointer rather than a derived pointer.

A virtual function is a member function which is present in the base class and redefined by the derived class.

When we use the same function name in both base and derived class, the function in base class is declared with a keyword virtual.

When the function is made virtual, then C++ determines at run-time which function is to be called based on the type of the object pointed by the base class pointer. Thus, by making the base class pointer to point different objects, we can execute different versions of the virtual functions.

25.What is a destructor?

A Destructor is used to delete any extra resources allocated by the object. A destructor function is called automatically once the object goes out of the scope.

Rules of destructor:

Destructors have the same name as class name and it is preceded by tilde.

It does not contain any argument and no return type.

27) What is overloading?

When a single object behaves in many ways is known as overloading. A single object has the same name, but it provides different versions of the same function.

C++ facilitates you to specify more than one definition for a function name or an operator in the same scope. It is called function overloading and operator overloading respectively.

Overloading is of two types:
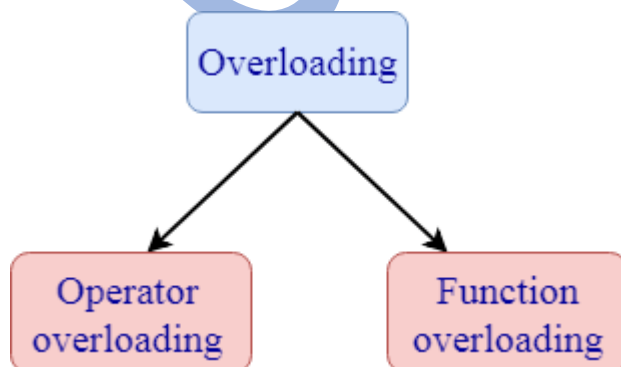
28. What does Scope Resolution operator do?

A scope resolution operator(::) is used to define the member function outside the class.

29.What is a function in C++?

A function in C++ is a block of code that can be referenced from anywhere in the system and that serves a specific purpose.

30. What is type casting in C++?

Type casting in C is used to change the data type. They are of two types: Implicit Type Conversion: It is automatic. Explicit Type Conversion: It is user-defined.

31. What is stream in C++?

Stream refers to a stream of characters to be transferred between program thread and i/o.

32. How to clear screen in C++?

One can clear screen using – clrscr() or system("clear").

33. How many keywords in C++?

There are 95 reserved keywords in C++ which are not available for re-definition or overloading.

34. Which operator cannot be overloaded in C++ ?

Some of the operators that cannot be overloaded are as follows:

– Dot operator- "."

– Scope resolution operator- "::"

– "sizeof" operator

– Pointer to member operator- ".*"

35. What is the difference between structure and class in C++?

The difference between structure and class is as follows:

– By default, the data members of the class are private whereas data members of structure are public.

– While implementing inheritance, the access specifier for struct is public whereas for class its private.

– Structures do not have data hiding features whereas class does.

– Structures contain only data members whereas class contains data members as well as member functions.

– In structure, data members are not initialized with a value whereas in class, data members can be initialised.

– Structures are stored as stack in memory whereas class is stored as heap in memory.

36. Explain what is the use of void main () in C++ language?

To run the C++ application it involves two steps, the first step is a compilation where conversion of C++ code to object code take place. While second step includes linking, where combining of object code from the programmer and from libraries takes place. This function is operated by main () in C++ language.

38. What is a scope resolution operator?

A scope resolution operator is represented as :
  • This operator is used to associate function definition to a particular class.
  • The scope operator is used for the following purposes:
  • To access a global variable when you have a local variable with the same name.
  • To define a function outside the class.

39. What do you mean by 'void' return type?

All functions should return a value as per the general syntax. However, in case, if we don't want a function to return any value, we use "void" to indicate that. This means that we use "void" to indicate that the function has no return value or it returns "void".

40. What is :: in C++?

:: is called a scope resolution operator which is used to access global variables with the same name as of local variables, for defining functions outside the class, for accessing static variables, and for referring to a class inside of another class.

41. Difference between Declaration and Definition of a variable.

The declaration of a variable is merely specifying the data type of a variable and the variable name. As a result of the declaration, we tell the compiler to reserve the space for a variable in the memory according to the data type specified.

42. Explain Local and Global scope of a variable.

The scope of a variable is defined as the extent of the program code within which the variable remains active i.e. it can be declared, defined, or worked with.

There are two types of scope in C++:

Local Scope: A variable is said to have a local scope or is local when it is declared inside a code block. The variable remains active only inside the block and is not accessible outside the code block.

Global Scope: A variable has a global scope when it is accessible throughout the program. A global variable is declared on top of the program before all the function definitions.

43. When there are a Global variable and a Local variable with the same name, how will you access the global variable?

When there are two variables with the same name but different scopes, i.e. one is a local variable and the other is a global variable, the compiler will give preference to a local variable.

In order to access the global variable, we make use of a "scope resolution operator (::)". Using this operator, we can access the value of the global variable.

44. What is a Constant? Explain with an example.

A constant is an expression that has a fixed value. They can be divided into integer, decimal, floating-point, character, or string constants depending on their data type.

45. What are the various Arithmetic Operators in C++?

+ addition

– subtraction

* multiplication

/ division

% module

46. What is a Static Variable?

A static variable is a local variable that retains its value across the function calls. Static variables are declared using the keyword "static". Numeric variables which are static have the default value as zero.

47. What are the Extraction and Insertion operators in C++?

In the iostream.h library of C++, cin, and cout are the two data streams that are used for input and output respectively. Cout is normally directed to the screen and cin is assigned to the keyboard.

"cin" (extraction operator): By using overloaded operator >> with cin stream, C++ handles the standard input.

int age;

cin>>age;

As shown in the above example, an integer variable 'age' is declared and then it waits for cin (keyboard) to enter the data. "cin" processes the input only when the RETURN key is pressed.

"cout" (insertion operator): This is used in conjunction with the overloaded << operator. It directs the data that followed it into the cout stream.

48. what is Member Functions in Classes?

The member function regulates the behaviour of the class. It provides a definition for supporting various operations on data held in the form of an object.

Class classname   //user define class

{

    Acess specifier;   //public,private,protected

    Data member;   //variable to used

    Member functions()

{

    //methods to acess data member

}

};   //class name ends with a semicolon

49.what is object?

An object is an instance of a class. Since a class is a user-defined data type so an object can also be called a variable of that data type.

class A{

private:

 int data;

public:

```
void fun(){


}

};
```

50. Explain how functions are classified in C++ ?

In C++ functions are classified as

Return type

Function Name

Parameters

Function body

51. What is assignment operator?

A: Default assignment operator handles assigning one object to another of the same class.

52. How do you access the static member of a class?

::

53.Discuss the difference between prefix and postfix?

In prefix (++i), first, it increments the value, and then it assigns the value to the expression.

In postfix (i++), it assigns the value to the expression, and then it increments the variable's value.

54. What is the C++ OOPs concept?

Object

Class

Inheritance

Polymorphism

Encapsulation

Abstraction

55. What is static member functions?

A static member function can be called even if no objects of the class exist and the static function are accessed using only the class name and the scope resolution operator ::

56.what is array of object?

The array of type class contains the objects of the class as its individual elements. Thus, an array of a class type is also known as an array of objects. An array of objects is declared in the same way as an array of any built-in data type.

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