

1. What are the Concepts of OOPs

1. Objects
2. Classes
3. Data Abstraction
4. Data Encapsulation
5. Inheritance
6. Polymorphism
7. Message Passing
8. Dynamic Binding

2. Differentiate Procedure Oriented Programming(POP) and Object Oriented Programming(OOP)

Procedure Oriented Programming	Object Oriented Programming
<ol style="list-style-type: none">1) Emphasis on non-real item2) Programs are divided into functions3) Data are sharable4) Structured Programming5) Top-Down Approach	<ol style="list-style-type: none">1) Emphasis on real item2) Programs are divided into Objects3) Data are not sharable4) Object Oriented Programming5) Bottom-Up Approach

3. Define Tokens

Smallest individual unit in a program.

Example : Keywords, Identifiers, Constants etc.,

4. What are the Data Types in C++

- Built-in Data types
- User Defined Data types
- Derived Data Types

5. Write the Block Structure of C++

- Include Files
- Class Declaration
- Member Function Definitions
- Main Function Program

6. What are the Operators in C++

- Scope Resolution Operator ::
- Pointer-to-Pointer Member Declarator : *
- Pointer-to-Pointer Member Operator ->*
- Pointer-to-Pointer Member Operator .*
- Delete-Memory Release Operator
- Endl-Line feed operator
- New-Memory allocation operator
- Setw-Memory width operator

7. What is expression? What are the expressions in C++?

- Constant Expressions
- Integral Expressions
- Float Expressions
- Pointer Expressions
- Relational Expressions
- Logical Expressions
- Bitwise Expressions

8. What is meant by Data Hiding?

Data are hidden inside a class, that can not be accessed by any function outside the class. It is achieved by declaring the data part as private.

9. What is Polymorphism? What the are the types of Polymorphism.

Polymorphism mean many forms.

Types : 1. Runtime Polymorphism 2. Compile time Polymorphism

10. Differentiate Constructor and Destructors.

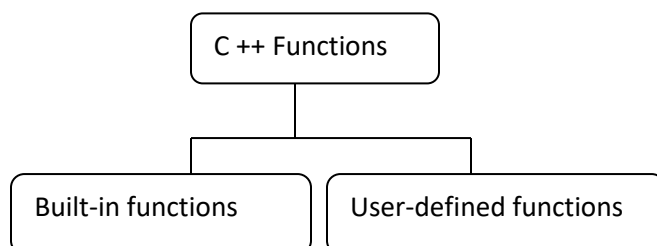
Constructor	Destructors
cannot be virtual.	can be Virtual.
has arguments.	has no arguments.
must be declared in public	must also be declared in public

11. What is function? What are the types of Function in C++?

A function is a set of statements that are put together to perform a specific task.

Types of functions in C++ :

In C++ we have two types of functions as shown below :



12. What are the Features of Inline Function?

- Run Faster
- Function Call & Return is Eliminated
- Improves Performance

13. What are the Components of Functions?

- Function Declaration
- Function Parameters
- Function Definition
- Return Statement
- Function Call

14. What is Default Arguments

A function with same name, Different arguments is known as Default Arguments

15. What is Function Overloading?

Overloading refers to the use of same thing for different purpose. i.e., Same function name performs variety of different tasks. Also known as Function polymorphism.

16. What are the parameter passing in C++.

- Pass by value
- Pass by Address
- Pass by reference

17. Define Class?

A class encloses both data and functions that operate on the data, into a single unit.

18. Define Object Based Language.

Object Based Language=Encapsulation + Object Identity

Object Oriented Language= Object Based Features + Inheritance + Polymorphism

19. What are the Access Specifiers in C++.

- Public
- Private
- Protected

20. What is Static Variables?

Defined with in the function, static variable initialized only once. Contents of the variables retained throughout the program.

21. Static Member Functions?

Static Function can have accessed by only static members declared in the same class. Static member function called using the name of class instead of its objects.

22. Define Constructor.

It is a member function having name of its class. It is executed automatically when object is created. It is used to initialize object and allocate the necessary memory.

23. Define Destructor.

It is a member function having the char ~ followed by name of its class. It is executed automatically when object goes out of scope. A class must have only one constructor.

24. Define Constructor Overloading.

A class can have multiple constructors. This is called constructor overloading.

25. What is order of Constructor and Destructor

When more than one object is created, they are destroyed in the reverse Chronological order. Object created most recently is the first one to be destroyed.

26. What is meant by Parameterized constructors.

Constructor that can take arguments are called parameterized constructor.

27. What is meant by Copy Constructors?

It is used to declare and initialize an object from another object

For example Integer i2 (i1) Define I2 and at the same time initialize it to the values of i1.

28. Define Friend Function.

Private members cannot be accessed from outside the class. To make an outside function “ Friendly” to a class, declare this function as a friend of the class.

29. What is meant by Friend Class?

We can also declare all the member function of one class the friend of another class. In such cases , the class is called a friend class.

30. What are the Special Characteristics of Friend Function?

- The function definition does not use friend keyword
- It is not in the scope of the class which is declared as friend
- It can be called like normal function without the help of any object
- Friend function acts as a Bridge between two classes

31. Define Operator Overloading?

To define an additional task to an operator. Mechanism of giving such special meanings to an operator is known as Operator Overloading.

32. What are the Operators of C++ that cannot be overloaded?

- . , .* - class member access operator
- :: - Scope Resolution Operator
- sizeof - Size of Operator
- ?:- Conditional Operator

33. Define Inheritance.

Creating new class from old class. (or) Deriving a new class from old class.

34. What are types of Inheritance?

- Single Inheritance
- Multiple Inheritance
- Multilevel Inheritance
- Hybrid Inheritance
- Hierarchical Inheritance

35.. What are visibility modes of Inheritance?

- Private
- Public
- Protected

Note: Private members are not inheritable, inaccessible to the objects of derived class.

36. How can you define member functions in c++?

Defined inside the class. Defined outside the class

37. What is meant by Abstract Class?

It is the one that is not used to create objects. That is, abstract class is designed only to act as a base class.

38. What is meant by intermediate base class?

In multilevel inheritance, first level derived class is known as intermediate base class.

39. What is meant by Automatic Initialization of objects.

C++ provides a special member function called the constructor which enables an object to initialize itself when it is created.

40. . What is meant by Hybrid Inheritance?

Two or more types of inheritance used to derive a class. Two or set of class acts as a base class, from which we can derive a new class.

41.What is meant by Multipath Inheritance?

Consists of multiple, multilevel and hierarchical inheritance.

42. Define Virtual Base Class.

Duplication of inherited members due to multiple paths can be avoided by making the common base class as virtual base class.

43. Define Virtual Function?

It is used to invoke exact version of the member function. Virtual functions should be defined in the public section of a class

44. How can you access the virtual functions.

Virtual functions have to be accessed through a pointer to the base class. It is not accessible directly.

45. What are the types of type conversion?

- conversion from basic type to class type
- conversion from class type to basic type
- conversion from one class type to another

46 . What is operator overloading?

The mechanism of giving such special meanings to an operator is known as operator overloading. or In c++ you can give special meanings to operators when they are used with user defined classes. This is called operator overloading.

47. Why is it necessary to overload an operator?

To define a new relation task to an operator, we must specify what it means in relation to the class to which the operator is applied. This is done with the help of a special function called operator function.

48. . What is a conversion function? How it is created? Explain its syntax

The type of data to the right of an assignment operator is automatically converted to the type of the variable on the left. For e.g., the statements

```
int m;
```

```
float x=3.14;
```

```
m=x;
```

Convert x to an integer before its value is assigned to m. thus the fractional part is truncated.

49 . When is a friend function compulsory? Give an eg.

A friend function is necessary when you have a function outside the class. And to access the private members of the class or the member function and also friend class can directly access the private and protected data.

50.. What is containership?

A class can contain objects of other classes. It is known as containership.

51. What is meant by pure virtual function?

A virtual function, equated to zero is called a pure virtual function.

52. What are rules for virtual function.

- The virtual functions must be members of some class
- They can not be static members
- They are accessed by object pointers
- Virtual function can be friend of another class.

53. What is meant by Streams?

A stream is a sequence of bytes and serves as a source or destination for an I/O data.

There are two types of streams

- Input stream
- Output stream

54. Differentiate input and output stream.

Input stream provides data to the program

Output stream receives output from the program

55. How can you access private members?

There are mechanisms to access even private data using friend function, pointer to members etc from outside the class.

56. What is meant by empty class?

Empty class consists of no member functions and no member variables

For example

Class abcd

```
{  
----  
}
```

57. What are the benefits of inheritance?

- Code Reuse
- Ease of code maintenance
- Increase reliability
- Improved performance
- Less maintenance
- Easy to extension

58. What are the Unformatted I/O Operations?

- Cin
- Cout
- Get()
- Put()

59. Differentiate Get() and Put() member functions.

Get() member functions used to read single character from keyboard and Put() member functions used to write single character to screen.

60. . Differentiate Getline() and Putline() member functions.

Getline() Function reads strings and ends with newline character

Putline() function displays strings on the screen.

61.. What is meant by pure abstract class?

A class containing pure virtual function is called pure abstract class .

62. What is meant by Concrete Class.

A class containing no pure virtual function is known as concrete class.

63. What are the ios format functions.?

- width()
- precision()
- fill()
- setf
- unsetf()

64. What is meant by manipulators

The header file iomanip provides a set of functions called manipulators which can be used to manipulate the output formats. They provide same features as that of the ios member functions and flags.

65. What are manipulators in C++?

- Setw(w)
- Setprecision(d)
- Setfill(c)
- Setiosflags(f)
- Resetiosflags(f)
- Endl

66. Define file.

File is collection of Records. Record is a collection of different data.

67. Differentiate file input stream and file output stream?

I/P Stream extracts data from file

O/P Stream inserts data to to file

68. What are operations on file?

- Name the file on the disk
- Open the file
- Process the file(Read/Write)
- Check for errors while processing
- Close the file

69. What are the file stream class?

- filebuf
- fstreambase
- ifstream
- ofstream
- fstream

70. What is meant by Static binding.

The Addresses of the functions are determined at runtime rather than compile time. Also known as late binding.

71. What is meant by Dynamic binding?

Opposite to Static binding. The functions are bound to the code to be executed at compile time. Also known as early binding.

72. What is meant by Reusability?

Supported by OOPs. This allows reuse of existing classes without redefinition. That is reusing of existing classes .

73. What is meant by instance of classes?

An instance of a class is an object whose type is class.

74. What is STL?

A collection of generic classes and functions is called the Standard Template Library. STL components are part of C++ standard Library.

77. What are three components of STL

The STL components are containers, algorithms and iterators.

78 . Define containers.

Containers are objects that hold data of same type. Containers are divided into three major categories: sequential, associative and derived.

79. What is iterators? What is its characteristic?

An iterator is an object (like a pointer) that points to an element in a container. We can use iterators to move through the contents of containers. Iterators connect algorithms with containers and play a key role in the manipulation of data stored in the containers.

80. What are the best situations for the use of the associative containers

Associate containers are designed to support direct access to elements using keys they are not sequential. Containers are best suited for fast searching, deletion and insertion of data in a structure called tree.