1. C++ is a general-purpose programming language that was developed as an extension of the C programming language. It provides features such as classes, inheritance, polymorphism, encapsulation, and many others, making it suitable for developing complex software systems.
2. The basic data types in C++ include integer types (int, short, long, etc.), floating-point types (float, double), character types (char), boolean type (bool), and wide character type (wchar\_t).
3. **++i** is the pre-increment operator, which increments the value of **i** before using it in an expression, while **i++** is the post-increment operator, which increments the value of **i** after using it in an expression.
4. **new** is an operator in C++ used for dynamic memory allocation, whereas **malloc()** is a function in C used for dynamic memory allocation. The **new** operator constructs and initializes the object, while **malloc()** simply allocates memory without initialization.
5. A constructor is a special member function in a class that is automatically called when an object of that class is created. It is used to initialize the object's data members and perform any necessary setup.
6. Function overloading is a feature in C++ that allows multiple functions with the same name but different parameter lists to coexist in the same scope. The compiler determines which function to call based on the number and types of arguments passed to it.
7. **virtual** is used to declare a member function as virtual, indicating that it can be overridden in derived classes. **override** is used in derived class member functions to explicitly specify that they are overriding a virtual function from a base class, helping catch errors at compile time.
8. A reference in C++ is an alias, or an alternative name, for an existing object. Once initialized, a reference cannot be made to refer to a different object. References are often used as function parameters to avoid unnecessary copying of objects.
9. **const** is used to declare variables whose values cannot be modified after initialization. **constexpr** is used to indicate that the value of a variable or expression can be evaluated at compile time.constexpr is evaluated at compile time.
10. A template in C++ is a feature that allows the creation of generic functions and classes. Templates enable writing code that operates on any data type while still providing type safety and avoiding code duplication.