

C Programming Interview Questions & Answers

C Interview Questions for Freshers

1. Who developed C Programming language?

A computer scientist named Dennis Ritchie from the USA developed the C programming language. He developed this with the help of his colleague Ken Thompson.

2. When was C language invented?

It was invented in 1972.

3. Why is C known as the mother language?

It is the mother of most of the JVMs and compilers. Most of the languages use functions from this language. It has concepts like arrays, functions, file handling, etc.

4. What do you understand by local and global variables in C?

Global variables are declared outside the function, and the scope of a variable is available till the end of the program. Local variables are declared inside the function, and the scope is available in these variables. The life of the local variable is created when the block is entered and ends on exit, but the life of a global variable exists until the execution of the program. Local variables are stored in a stack unless specified, and the compiler decides the storage location of a variable in global ones. So, these are the differences between a local and global variable in C.

5. Why are functions used in C?

Functions in C language are used to avoid rewriting the code. They can be called multiple times from a program. With the help of functions, any program can be tracked easily. It also provides the concept of reusability. Furthermore, a user can also break the big task into smaller tasks with the assistance of C functions.

6. What are arrays in C programming?

It is a group of elements of similar sizes. The size of the array can also be changed after declaration. The array has a contiguous memory location, and it makes code optimized and easier. Arrays in C are of two types: ● One-dimensional array ● Multidimensional array

7. What do you understand by dynamic memory allocation in C?

When memory is allocated at the run time in any program and can be increased at the time of execution, it is called dynamic memory allocation in C programming. It is used in the linked list. At runtime, malloc() and calloc() are used. It is implemented with the help of data segments, and less memory is required for storage.

8. What is ANSI in C?

ANSI, or American National Standard Institute, is an organization that maintains computer languages, data safety, data encoding, etc.

9. What is token in C?

A token is an identifier that can be a keyword, constant, operator, a string literal, etc. It is also the smallest unit in a program in C.

10. Tell me about some top features of C language.

- C language follows a structured approach
- It is fast and extensible
- Memory management
- Efficiency

11. What is the role of printf and scanf in C programming?

- printf() function in C is used to print the values of character, float, integers, and string values. Some specifiers are %d, %s, %c, %f used for printing the values.
- scanf() function in C is used for getting input from the user for a program.

12. What is the use of static variables in C?

When a variable is declared as static, it is known as a static variable. It keeps the value between various function calls. These are used because the static variable in C is available throughout the program. It is initialized to zero and later updated to the needed value. It is used only one time so that the memory space can be utilized.

13. What is recursion in C programming?

When a function calls itself, the process is known as recursion, and the function is known as a recursive function. It has two functions, the winding phase, and the unwinding phase.

14. What is a pointer in C programming?

A variable that refers to the memory address of any value is called a pointer. It is used to optimize the program to run faster. Some memory is allocated to a variable and it holds the address number that is called the pointer variable.

15. What is a NULL pointer in C?

When a pointer is not used to refer to any address, it is called a NULL pointer. When we assign 0 to any pointer, it is called a NULL pointer.

16. What is the difference between formal and actual parameters in C?

The parameters sent from the main function to subdivided functions are called actual parameters. The parameters declared at subdivided functions are called formal parameters.

17. What is nested structure in C programming?

It is a structure that contains an element of another structure as its member. Basically, A nested structure is a structure within a structure. It is done the same way structure members are declared in a function.

18. How to declare a function in C?

A function in C can be declared as:

```
return_type function_name(formal parameter list)
{ function_body; }
```

19. What is the difference between call by value and call by reference in C?

Actual arguments remain safe and can not be changed in the call by value in C. The operators are not safe as they are performed on actual parameters. In the call by value, actual segments are not passed, and a copy of the segment is sent, but in the call by reference, actual arguments are passed. For call by value, separate memory locations are created, and for the call by reference, they share the same memory space.

20. Can you write a program to generate random numbers in C?

Yes, I can generate random numbers in C with the help of the rand() function. Here is how:

```
#include
#include
#include void main() {
    printf("The number is: %d", rand());
    printf("\n The number is: %d", rand());
    printf("\n The number is: %d", rand());
    getch();
```

}

The output will be:

The number is: 455 The number is: 15648

The number is: 23212

21. What is an arrow operator in C programming?

The arrow operator in C is used to access the data member of a union and declared as a pointer variable. It is expressed as -> in C language.

22. What are storage class specifiers in C?

Storage class specifiers in C are extern, static, register, and auto.

23. What is typecasting in C?

When one data type is converted into another data type, the process is known as typecasting.

24. The local and global variables in C have the same name. Is it possible to access a global variable from a block with local variables?

Local variables are preferred, and it is not possible to access them in global variables.

25. What do you understand by enumerations in C?

An enumeration in C is a user-defined data type widely known as an enum. It has constant integers and integrals, which have names assigned by the user. It is used when a user needs a variable with a set of values.

26. What is union in C program?

Union in C programming is a data type that is user-defined that allows many types of data in a single unit. This data type holds the memory of the largest member, and it does not use the sum of the memory of all functions. In this, we can access one variable at a time as it allocates one common space for all members of a union.

27. What is the use of the symbol '=='?

It is a relational operator that is used to compare two variables or values in a program. It is called equal to or equivalent to.

28. What is ternary operator in C?

The conditional operator is known as the conditional operator in the C language. It is denoted as (?:).

29. What is a preprocessor in C?

The C preprocessor is a software program that is used to process a source file before compilation. Header files, conditional compilation, line control, macro expansion, etc. can be included in a preprocessor.

30. Which operator is used in C to continue the program in the next line?

The backward slash(/) is used for this.

31. What is the difference between lvalue and rvalue in C?

The expression that is present on the right side of the assignment operator is known as the rvalue. It is assigned to lvalue which is on the left side of the assignment operator. The lvalue represents a variable and not a constant.

32. What do you understand by FIFO in C?

The data is stored in FIFO format in C language. The queue works on First-In-First-Out. The first data stored will be the first one to be accessed in a program.

33. How many spaces are there in a tab in C?

A tab in C programming has eight spaces.

34. Tell me about the if-else statement in C?

The if-else statement in C programming works as a control flow statement. it is followed by an optional else statement in C language.

35. Do you know about static memory allocation in C?

Explain what it is. The memory that is allocated during the time of compilation is called static memory allocation. It is implemented using heap or stacks. This type of memory can

not be executed with the program. The lifespan of a static memory is the lifetime of a program. It is used by the array in C.

36. Tell me about variables in C programming and how these are different from constants?

Variables are identifiers that are made of one or more characters and hold a particular value. The values that are held by variables can be changed in a program. The values given to constants are not changeable and can only be assigned once, mostly at the start of the program.

37. What is the use of && operator in a C program?

This is the AND operator in the C program. There is a situation for using this operator where all the conditions are true. When only one statement is false, it will return false as a result.

38. Explain run-time errors in C language?

When there is a run-time error in a program, the execution of a program is paused, and it is called the run-time error. It will show which part of the program caused the error.

39. How to view the path in C?

The C compiler has a function called `getenv()` that is used to retrieve the environment variable. It returns the pointer to an environment string on success. When the function variable can not find environment variables, it returns `NULL`.

40. When a pointer points to a variable in C, what is it contained in?

The variable will contain the address of another value or memory.

41. What is the difference between a free-standing and hosted environment?

Embedded systems don't have any sort of file system or operating system and the ANSI standards call these environments a free-standing environment. When a program is running on a system, it is called a hosted environment.

42. How would you free a block of memory that has been allocated in a program?

Memory allocated in a program can be released by the free() function. The alternate method is when the pointer is holding a memory address which is realloc(ptr,0).

43. Can I declare static variables in header files in C language?

C programs can not declare a static variable without defining it. Static variables in a program can be defined in a header file, but it will result in causing every source file to have a different copy of a variable.

44. Can you write a C program to check even or odd numbers without using any arithmetic operator?

Yes, this can be done. Here is the program:

```
#include  
  
int main()  
{  
    int i;  
    printf("Enter a number: ");  
    scanf("%d", &i);  
    if((number &1)==0)  
        printf("%d is even", i);  
    else printf("%d is odd", i)  
    getch();  
}
```

A bitwise AND operator can also be used to check if the number is even or odd.