C viva questions

1. **Who developed C language?**
   C language was developed by Dennis Ritchie in 1970 at Bell Laboratories.
2. **Which type of language is C?**
   C is a high – level language and general purpose structured programming language.
3. **What is a compiler?**
   Compile is a software program that transfer program developed in high level language into executable object code
4. **What is IDE?**
   The process of editing, compiling, running and debugging is managed by a single integrated application known as Integrated Development Environment (IDE)
5. **What is a program?**
   A computer program is a collection of the instructions necessary to solve a specific problem.
6. **What is an algorithm?**
   The approach or method that is used to solve the problem is known as algorithm.
7. **What is structure of C program?**
   A C program contains Documentation section, Link section, Definition section, Global declaration section, Main function and other user defined functions
8. **What is a C token and types of C tokens?**
   The smallest individual units are known as C tokens. C has six types of tokens Keywords, Constants, Identifiers, Strings, Operators and Special symbols.
9. **What is a Keyword?**
   Keywords are building blocks for program statements and have fixed meanings and these meanings cannot be changed.
10. **How many Keywords (reserve words) are in C?**
    There are 32 Keywords in C language.
11. **What is an Identifier?**
    Identifiers are user-defined names given to variables, functions and arrays.
12. **What is a Constant and types of constants in C?**
    Constants are fixed values that do not change during the program execution. Types of constants are Numeric Constants (Integer and Real) and Character Constants (Single Character, String Constants).
13. **What are the Back Slash character constants or Escape sequence characters available in C?**
    Back Slash character constant are \t, \n, \0
14. **What is a variable?**
    Variables are user-defined names given to memory locations and are used to store values. A variable may have different values at different times during program execution
15. **What are the Data Types present in C?**
    Primary or Fundamental Data types (int, float, char), Derived Data types(arrays, pointers) and User-Defined data types(structures, unions, enum)
16. **How to declare a variable?**
    The syntax for declaring variable is
    data type variable_name-1, variable_name-2,....variable_name-n;
17. **What is meant by initialization and how we initialize a variable?**
    While declaring a variable assigning value is known as initialization. Variable can be initialized by using assignment operator (=).
18. **What are integer variable, floating-point variable and character variable?**
    A variable which stores integer constants are called integer variable. A variable which stores real values are called floating-point variable. A variable which stores character constants are called character variables.
19. **How many types of operator or there in C?**
    C consist Arithmetic Operators (+, -, *, /,%), Relational Operators (<, <=, >, >=, !=), Logical Operators (&&, ||, !), Assignment Operators (=, +=, -=, *=, /=), Increment and Decrement Operators (++, --), Conditional Operator(?:), Bitwise Operators(<<, >>, ~, &, |, ^) and Special Operators (. , ->, &, *, sizeof)
20. **What is a Unary operator and what are the unary operators present in C?**
    An operator which takes only one operand is called unary operator. C unary operators are

Unary plus (+), Unary minus (-), Increment and Decrement operators (++,--), Address of operator (&), Value at operator (*), sizeof operator, ones complement operator (~).

21.   What is a ternary operator and which is called ternary operator is C?
An operator which takes three operands is called ternary operator. Conditional operator (? :) is knows as ternary operator in C.

22.   What is the use of modulus (%) operator?
The modulus operator produces the remainder of an integer division. It cannot be used on floating point data.

23.   What is the use of printf and scanf functions in C?
Values of variables and results of expressions can be displayed on the screen using printf functions. Values to variables can be accepted through the keyboard using scanf function.

24.   What are the format codes used in printf and scanf functions in C?
%c (for reading or printing a single character), %d (for reading or printing signed integer), %u (for reading or printing unsigned integer), %ld (for reading or printing long signed integer), %lu (for reading or printing long unsigned integer), %f (for reading or printing floating point value), %lf (for reading or printing double floating point value), %Lf (for reading or printing long double value, %s (for reading or printing string value)

25.   What are the decision making statements available in C?
IF statement, Switch statement and conditional statement

26.   What is the use of IF statement and how it works?
The IF statement is used to control the flow of execution of statements. It first evaluates the given expression and then, depending on whether the value of the expression is true or false, it transfers the control to a particular statement.

27.   Forms of IF statements?
Simple IF statement, IF-ELSE statement, NESTED IF-ELSE statement and ELSE IF ladder

28.   How switch statement works?
The switch statement tests the value of a given variable against a list of case values and when a match is found, block of statement associated with that case is executed and if no match is found then the block of statements associated with the optional default is executed. If default case not present, control goes to the statement after the switch.

29.   What is the difference between IF and SWITCH statement?
IF works on integers, floats and characters whereas SWITCH works on only integers and characters. Switch statement cannot perform inequality comparisons whereas IF can perform both equality and inequality comparisons.

30.   How conditional operator (? :) works?
The conditional expression is evaluated first. If the expression is true then expression after the question mark is executed otherwise expression after the colon is executed

31.   What is GOTO statement?
GOTO is an unconditional branching statement which transfer control to the specified label

32.   What is a LOOP?
Loop is a sequence of statements that are executed repeatedly

33.   What are the types of LOOP control statement?
Entry-Controlled Loop statement and Exit-Controlled loop statement

34.   What are the LOOP control statements present in C?
WHILE, DO-WHILE, FOR

35.   What are the sections present in FOR loop?
Initialization section, Conditional section, increment or decrement section

36.   How a FOR loop works?
In FOR loop first initialization section is executed, then given condition is checked. If condition becomes true then body of the loop is executed after that increment or decrement section is executed

37.   What is the use of break statement?
Break statement is used to exit from a loop

38.   What is an ARRAY?
Array is a collective name given to similar elements

39.   How ARRAY elements are stored in memory?
Array elements are stored in consecutive memory locations

40.   How we can initialize an ARRAY?

All the element are separated by comma and enclosed within braces

41. How to access array element?

Array elements can be accessed by using subscript

42. What is the difference between normal variable and array variable?

A variable can store only one value at a time whereas array variable can store several value at a time.

43. What are the types of Array's?

One-Dimensional array, Two-Dimensional array and Multi-Dimensional array

44. What is a TWO-DIMENSIONAL array?

A Two-Dimensional array is an array which has elements as one-dimensional arrays?

45. What is a character array?

Array which can store several characters is called character array

46. How to initialize a character array?

Character arrays can be initialized by separating character constants with comma and enclosed with in parenthesis or characters enclosed within double quotation marks.

47. What is the difference between reading strings using scanf and gets?

Scanf can not read strings with multiple words whereas gets can read strings with multiple words

48. What are the String-Handling functions available in C?

gets, puts, strcat, strcmp, strcpy and strlen.

49. What are the types of functions?

C functions are divided into two categories user-defined function and built-in functions

50. What is a function?

Function is a self contained block of statement which is used to perform certain task

51. Which are called built-in functions?

Printf, scanf, clrscr, gotoxy, string handling functions and file handling functions

52. What is function prototype declaration?

A function declaration is also known as function prototype declaration which contains function return type, function name, parameter list and terminating semicolon

53. What are formal arguments and actual arguments?

Arguments that are used in function calling are called actual arguments. Arguments that are used in function definition are called formal arguments

54. What is a recursive function?

A function calling itself is called function recursion

55. What is call by value and call by reference?

Passing values to the called function is called call by value, passing addresses to the called function is called call by reference

56. How to pass an array to a function?

Arrays are passed to a function by sending its address

57. What is a global variable and local variable?

Variables which are declared in the global section is called global variables and Variables which are declared in a function or a block are called local variables

58. What is a pointer variable?

Pointer variable is a variable which can store address of another variable

59. How can we store address of a variable in a pointer?

By using address of operator we can store address of a variable in a pointer

60. How can we access a variable value using a pointer?

By using value at operator we can access a variable value using its pointer

61. What is the use of pointers?

Pointer are used to pass array and structures from function to another function

62. How many bytes a pointer variable occupies in memory?

A pointer variable irrespective of its type it occupies two bytes in memory

63. What are the storage classes available in C?

Auto, Static, Extern and Register

64. What is a structure?

Structure is a user-defined data type. Structure is a collective name given to dissimilar elements

65. How to access structure members?

Structure members can be accessed using dot operator

66.   How to initialize structure variable?

All the members are separated by comma and are enclosed within braces

67.   What are the differences between structures and arrays?

Structures stores dissimilar values where as arrays stores similar values. One structure variable can assigned to another structure variable whereas one array variable cannot be assigned to another array variable

68.   What is the size of a structure?

Sum of all the members size is becomes structure size

69.   How to access structure member by its pointer?

We can use structure members using arrow operator with its pointer

70.   What is a union?

Union is a user-defined data type which can store a value of different data types

71.   What is the difference between structures and unions?

Structures can store several values at a time whereas unions can store one value at a time. A structure size becomes sum of all its members whereas a union size becomes size of a member whose size is largest

72.   What are the types of files we can create using C?

We can create text and binary files using C

73.   What are the file-handling functions present in C?

fopen, fclose, fgetc, fputc, fgets, fputs, fprintf, fscanf, fread, fwrite, fseek

74.   What are the file opening modes present in C?

r, w, a, r+, w+, a+, rb, wb, rb+, wb+