**Define the term variable and constant.**

**Variable:**

          A variable is a data name that is used to store a value. A variable may take different values at different times. A variable can be chosen by the programmer in a meaningful way. So as to reflect its function or nature in the program.

Eg:

city                    college     a1

Total\_mark      Name       Avg

**Constant:**

  A constant is a value that does not change during the program execution. A constant used in C does not occupy memory.

**2.**    **What is an expression in C language?**

Expression is defined as a combination of operand and operator to obtain some computation. Operands represent variable or values and the operator tells what operation is to be performed.

**3.**    **Specify the use of printf( ) and scanf( ) functions.**

 The function scanf() is used for formatted input from the standard input and provides many of the conversion facilities.

 It is used for formatted output to standard output device,( screen) . The format specification contains string and the data to be output, as the arguments(parameter) to the printf() function.

**4.**    **What is an unary operator? Give example.**

            The operators that act upon a single operand to produce a new value is known as unary operator.

Eg: minus operator(-) ,Increment operator (++)

**5.**    **What are formal arguments?**

       The formal parameters are used to collect values or address from the calling function to a function being called.

**6.**    **Define the term recursion.**

     A function may call another function. When a function calls itself, it is referred to as recursive call the process is known as recursion. C provides very good facilities for recursion.

**7.**    **What are automatic variable?**

            Variables that used as a local variable inside any function. This is the default one. Initial value of variable is garbage value without initialization.

**8.**    **What are bitwise operators?**

The bitwise operator performs the operation on bits (i.e, bit by bit). Using the bitwise operators we can set/ reset/ check any bit in the value of the variable.

**9.**    **Define the term pointer data type.**

A pointer is a variable that represent the location (rather than the value) of a data item, such as a variable or an array element. It is a variable that holds a memory address. This address is the location of another variable or an array element in memory.

**10. What are keywords? Give example.**

Keywords have fixed meaning and these meaning cannot be changed. These keywords can be used only for their intended purpose, they cannot be used as programmer-defined identifiers.

The following are examples of few keywords are predefined by C

auto       double           int             struct

break        else             if              switch

case          enum          do             while

**What is meant by declaration?**

 Declaration is to represent a variable

 Only variable name and its data type is represented in declaration.

**12.**    **Specify the syntax used for ‘for’ statement.**

 The for loop is entry controlled loop the provides a more concise loop control structure. The general format of the loop is

|  |
| --- |
| for(intilialization;test-condition;increment/decrement){     Body of the loop; } |

**13.**    **Mention the use of ‘break’ and ‘continue’ statements.**

 The break statement is used to terminate the loop containing it.

 The continue statement does not terminate the entire loop but is used to terminate the current iteration of the loop.

**14.**    **What are function prototypes?**

A function declaration is also called as function prototype consists of four parts.

 Function type(return type)

 Function name

 Parameter list

 Terminating semicolon.

**15.**    **What are library functions?**

The function that are predefined and supplied along with the compiler are known as built in functions. They are also known as library function.

**16.**    **Specify the role of static variables.**

 If you declare within a function, It retains the value between function call.

 If it is declare a for a function name. It will be visible from other files if the function declaration is as static.

 Static are global variables. By default we can use the global variables from outside files if it is static global.

**17.**    **What is a string?**

  A string is a sequence of characters ending with NULL. It can be treated as a one-dimensional array of character terminated by a NULL character.

**18.**    **How to declare multidimensional array?**

     Two dimensional array follows row major order storage representation. The elements are stored in row by row in the subsequent memory locations.

**19.**    **What is recursive function? Give an example.**

Recursive function is a function which contains a call to itself.

Eg:

       int factorial(int n)

       {

           if(n==0)

              return(1);

           else

              return(n\*factorial(n-1));

       }

**20.**    **Define an array.**

 Array is the collection of elements.

 Collection of the elements of the same data type.

 All elements are stored in the contiguous memory locations.

**21. List any four bitwise operators.**

|  |  |
| --- | --- |
| Operator | Meaning |
| &|<< >>  | Bitwise ANDBitwise ORShift leftShift right |

**21.**    **What are Relational Operator in C?**

     The relational operators are used to compare arithmetic, logical and character expressions. We often compare two similar quantities and depending on their relation, take some decisions. Each of these operator compares their left hand side with their right hand side. The whole expression involving the relational operator then evaluates to an integer. It evaluates to zero if the condition is false, and one if it is true

|  |  |
| --- | --- |
| Operator | Meaning |
| <  | Less than |
| >  | Greater than |
| <= | Less than or equal to |
| >= | Greater than or equal to |
| == | Equal to |
| != | Not equal to |

**22.**    **What is the purpose of conditional operator?**

     The conditional operator consists of two symbols the question mark (?) and the colon (:). The conditional expression of the form

       variable = exp1?exp2:exp3;

                                                                            conditional expression

where exp1 is test expression, exp2 is expression or constant or variable, exp3 is expression or constant or variable.

**23.**    **Write the advantages of pointer.**

Pointer is used in the following cases.

 It is used to access array elements.

 It is used for dynamic memory allocation.

 It is used in call by reference.

 It is used in data structure like trees, graph, etc.

**24.**    **What is character set?**

  The C Character set consists of upper and lower case alphabets, digits, special character and white spaces. The alphabet and digits are together called the alphanumeric characters.

 Alphabets:

            A,B,C,D,E………………………X,Y,Z

            a,b,c,d,e………………………..x,y,z

 Digits:

            0,1,2,3,4,5,6,7,8,9

 Special Character

    +  \*& ^ % $ # @ ! ~ `  --  = > < .\ , : ;

**25.**    **What are logical operators?**

       A logical operator is used to compare or evaluate logical and relational expressions. There three logical in C language. They are

|  |  |
| --- | --- |
| Operator | Meaning |
| && | AND |
| || | OR |
| ! | NOT |

**26.**    **Write a note on scanf() function.**

     The scanf() function can be used to enter any combination of data, like single character, string, integer and float values. The general format of the scanf() function is

|  |
| --- |
| scanf(“format specifier “, arg1, arg2……………..argn); |

where format specifier string contains certain required formatting information, and avg1, avg2….avgn are arguments that represent the individual input data item.

**27.**    **What are function?**

       A function is a set of statement to perform a specific task.

**28.**    **Define actual parameters.**

       Actual parameters are used for passing values or address from the calling function to a function being called.

**29.**    **Write the general form of structure of C functions.**

            A C program basically has the following form

o   pre-processor commands

o   type definitions

o   function prototype

o   variable declaration

o   function body

**30.**    **Give the syntax of if-else statement.**

The if-else statement performs one of the two possible actions. The general format is

|  |
| --- |
| if(test expression)  {     true-statement block;   }else  {     false-statement block;   }next statement. |

**31.**    **What is an identifier?**

  Identifier are names that are given to various program elements such as variables, functions and arrays. Identifier consist of letters and digits, in any order, except that the first character must be a letter. Both upper and lower case letters are permitted though common usage favours the use of lower letters. The underscore is treated as a letter.

**32.**    **What is an escape sequence?**

       Some combination of characters have the special functions such as \n, \t and \b. They are called as escape sequence.

**33.**    **What is the purpose of getchar() function?**

  It returns a character just entered from the standard input unit that is keyboard. The entered character can be either assigned to a character variable or enclosed to the computer screen.

**34.**    **What is a character constant?**

A character constant is a single character, enclosed within the pair of single quotation mark. Example :    ‘x’ , ‘5’

**35.**    **What is purpose of comma operator?**

            A set of expression separated by commas is a valid construct in the C language. For example

                           int i,j;

            The comma operator also used to link the related expression together. A comma linked list of expression are evaluated left to right and the value of right-most expression is the value of the combined expressions.

**36.**    **What is use of gets( ) function?**

     The gets( ) function is used to accept a string.

**37.**    **How to declare pointer variable?**

       A pointer declaration consists of a base type, an \*, and the variable name. The general form for declaring a pointer variable is

                              data\_type     \*var\_name;

  For example

                         int  \*p;

**38.**    **List the four types of qualifiers.**

      short

      long

      signed

      unsigned

**39.**    **What is an operator?**

            In C operator can be classified into various categories based on their utility and action, a list operator types are given below

  Arithmetic operators

  Relational operators

  Logical operators

  Assignment operators

  Increment operators

  Conditional operators

  Bitwise operators

  Comma operators

  Other operators

**40.**    **What are the advantages of functions?**

  It reduces the complexity in a program by reducing the code.

  Functions are easily understandable  and execution is faster.

  It also reduces the time to run a program.

  It’s easy to find-out the errors due to the blocks made as function definition outside the main function.

**41.**    **Write the syntax of while statement in C.**

                        The general format of the while statement is

|  |
| --- |
| while(test\_condition){    Body of the loop; } |

**42.**    **What is symbolic constant (pre-processor constant)?**

 Names given to value that cannot be changed.

 Implemented with the  #define program directive

                       #define N 300

 Note that pre-processor statement begin with a # symbol, and semicolon before the program is actually compiled.

 In general, pre-processor constant are written in ‘UPPER CASE’.

**43.**    **What is a looping?**

       A looping is a process to do a job repeatedly with possible different data at each time. The statement executed each time constitute the loop body, and each pass is called iteration. A condition must be present to terminate the loop.

**44.**    **What is string constant?**

            A string constant is a sequence of character enclosed in double quotes. The characters may be letters, numbers, special characters and blank space.

             Eg:  “Hello” ”1987” “WELL DONE” “?.....!” “5+3” “X”

**45.**    **What is the purpose of putchar( ) function?**

            The putchar( ) function display one character on the display monitor. The character to be displayed is of type char. The syntax for putchar( ) function is as given below

                                    putchar(variable);

**46.**    **Write a note on do-while statement.**

            In the do statement, the program proceeds to executes the body of the loop first. At the end of the loop the test condition is evaluated. If the condition is true, the program continues to execute the body of the loop. This process continues as long as the condition is true.

**47.**    **Define scope of variables.**

            Scope refers to the visibility of variables of it is declared outside of any function declaration, it is a global variable. If it is declared inside of any function declaration, it is a local variable.

**48.**    **Write the syntax for switch() statement.**

|  |
| --- |
| switch(expression)  {      case value-1:                               Block-1;                               Block-2;      ………….      ………….      default:                                default block;                               break;    }statement-x; |