Programming in "C"

UNIT 1: FUNDAMENTALS OF COMPUTER AND LOGICAL THINKING

Basic block diagram and function of computer component, Software and hardware, Software classification, Classification of programming language, Compiler and Interpreter, Algorithm and flowchart.

1. Computer is an electronic device that is used to compute arithmetic and logical operations.
   True
   False

2. _____ is the brain of the computer.
   a) Monitor
   b) CPU
   c) Keyboard
   d) Mouse

3. ALU stands for
   a) Arithmetic Longest Unit
   b) Arithmetic Logic Unit
   c) Arithmetic Longest United
   d) None of these

4. In computer, CU stands for
   a) Control Unit
   b) Cache Unit
   c) Calculating Unit
   d) Communication Unit

5. CPU consists of following parts
   a) CU and main memory
   b) CU and ALU
   c) Main memory and storage
   d) Operating system and application

6. RAM stands for
   a) Random origin money
   b) Random only memory
   c) Read only memory
   d) Random access memory

7. When arithmetic, logic and control unit of a computer are combined into a single unit, it is known as
   a) Central processing unit
   b) Memory unit
   c) I/O unit
   d) Operating unit

8. Functions performed by CPU are
   a) interprets and executes instructions
   b) communication with other parts of computer
   c) arithmetic and logic operations
   d) all of these

9. Which of the following is an input device?
   a) Keyboard
   b) Mouse
   c) Scanner
   d) All of the above

10. Which of the following is an output device?
    a) Barcode reader
    b) Light Pen
    c) Monitor
    d) None of the above

11. What is software?
    a) Software is a set of instructions that tells a computer exactly what to do.
    b) Software represents the physical components of a computer.
    c) Software is a tangible components of a computer.
    d) None of the above.

12. What is hardware?
    a) Hardware is a set of instructions that tells a computer exactly what to do.
    b) Hardware represents the physical and tangible components of a computer.
    c) Hardware is a set of programs designed to perform a specific task.
    d) None of the above

13. Which of the following is an example of software?
    a) Monitor
    b) CPU
    c) Browser
    d) Printer

14. Which of the following is an example of hardware?
    a) Browser
    b) Operating System
    c) Microsoft Word

d) Keyboard

15. Hardware cannot perform any task without software.
    True
    False

16. _____ Software is the type of software which is the interface between application software and system.
    a) System software
    b) Application software
    c) Both a and b
    d) None of these

17. _____ Software is a set of programs designed to perform a specific task.
    a) System software
    b) Application software
    c) Both a and b
    d) None of these

18. Which of the following is an example of system software?
    a) MS Word
    b) Browser
    c) Linux
    d) Facebook

19. Which of the following is not the programming language?
    a) High level language
    b) Assembly level language
    c) Machine level language
    d) Operator level language

20. Which language is easily understood by human?
    a) High level language
    b) Assembly level language
    c) Machine level language
    d) All of the above

21. Machine level language is also known as
    a) High level language
    b) Binary language
    c) Urban language
    d) Arabic language

22. Types of programming language is/are
    a) High level language
    b) Machine level language
    c) Assembly level language

d) All of these

23. _____ is used to convert assembly level languages to machine level languages.
    a) Compiler
    b) Interpreter
    c) Assembler
    d) All of these

24. Assembler is used to convert high level language to assembly level languages.
    True
    False

25. Which of the following is used to convert high level language to machine level language?
    a) Compiler
    b) Assembler
    c) Printer
    d) None of these

26. Which of the following runs whole program at a time?
    a) Compiler
    b) Interpreter
    c) Assembler
    d) None of the above

27. What is a compiler?
    a) A compiler does a conversion line by line as the program is run
    b) A compiler converts the whole of a higher level program code into machine code in one step
    c) A compiler is a general purpose language providing very efficient execution
    d) None of the above

28. What is an interpreter?
    a) An interpreter does the conversion line by line as the program is run
    b) An interpreter is the representation of the system being designed
    c) An interpreter is a general purpose language providing very efficient execution
    d) None of the above

29. _____converts high level language to machine level language in line by line.
    a) Compiler
    b) Interpreter
    c) Assembler
    d) None of the above

30. What is an algorithm?
    a) Algorithm is the graphical representation of algorithm.

b) Algorithm is the step-by-step solution of given problems.

31. Which of the following is the disadvantage of algorithm?
    a) It gives step by step solution of problem.
    b) It is easy to understand the problem.
    c) Independent from programming language.
    d) Complicate to create

32. In computer science, algorithm refers to a special method usable by a computer for the solution to a problem.
    True
    False

33. When an algorithm is written in the form of a programming language, it becomes a _____
    a) Flowchart
    b) Program
    c) Pseudo code
    d) Syntax

34. Any algorithm is a program.
    True
    False

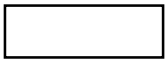
35. Which of the following is incorrect?
    Algorithms can be represented:
    a) as pseudo codes
    b) as syntax
    c) as programs
    d) as flowcharts

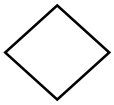
36. Algorithm is the step-by-step solution of given problems.
    True
    False

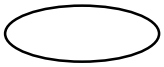
37. The process of drawing a flowchart for an algorithm is called _____
    a) Performance
    b) Evaluation
    c) Algorithmic Representation
    d) Flowcharting

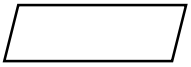
38. What is flowchart?
    a) Flowchart is the graphical representation of algorithm.
    b) Flowchart is the step-by-step solution of given problems.
    c) Algorithmic Representation
    d) All of these

39. Which of the following symbol is used for processing operation in flowchart?

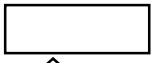
a) 

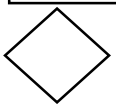
b) 

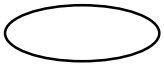
c) 

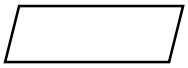
d) 

40. Which of the following symbol is used to check the logical condition?

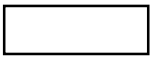
a) 

b) 

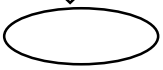
c) 

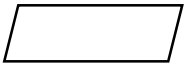
d) 

41. Which of the following symbol is used for input/output operation in flowchart?

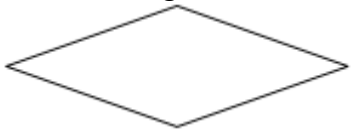
a) 

b) 

c) 

d) 

42. The following box denotes?



a) Decision
b) Initiation
c) Initialization
d) I/O

43. Which of the following is not an advantage of a flowchart?

a) Better communication
b) Efficient coding
c) Systematic testing
d) Improper documentation

44. The _____ provides pictorial representation of given problem.
    a) Algorithm
    b) Flowchart
    c) Pseudocode
    d) All of these

45. The _____ symbol is used to represent process in flowchart.
    a) Circle
    b) Rectangle
    c) Diamond
    d) None of these

46. The _____ symbol is used at the beginning of a flow chart.
    a) Circle
    b) Rectangle
    c) Diamond
    d) None of these

47. _____ symbol is used to represent input and output operation in flowchart.
    a) Circle
    b) Rectangle
    c) Diamond
    d) Parallelogram

48. _____ symbol is used to represent input and output operation in flowchart.
    a) Circle
    b) Rectangle
    c) Diamond
    d) Parallelogram

49. The _____ symbol is used to represent decision in flowchart.
    a) Circle
    b) Rectangle
    c) Diamond
    d) None of these

50. Flowchart is the graphical representation of algorithm.
    True
    False

UNIT 2:

BASICS OF C:

History of C, Importance of C, Basic structure of a C program, Executing a C program, C tokens, Keywords, Identifiers, Constants and variables, Data types – declaration and initialization, User defined type declaration, Symbolic constant.

OPERATORS AND EXPRESSION:

Operators – Arithmetic, Relational, Logical, Assignment, Increment decrement, Conditional, Bitwise and Special, Arithmetic expression and evaluation, Type conversion: implicit and explicit, Operator precedence and associativity.

1. Who is the founder of C language?
   a) Bjarne Stroustrup
   b) Dennis Ritchie
   c) James A. Gosling
   d) Dr. E.F. Codd

2. In which section, we can define all symbolic constants?
   a) Definition section
   b) Main function
   c) Link section
   d) Documentation section

3. A C variable must begin with a
   a) An alphabet
   b) A number
   c) A special symbol
   d) Underscore

4. Which of the following is not a valid variable name declaration?
   a) int __a3;
   b) int __3a;
   c) int __A3;
   d) None of the mentioned

5. All keywords in C are in _____
   a) LowerCase letters
   b) UpperCase letters
   c) CamelCase letters
   d) None of the mentioned

6. Which of the following is true for variable names in C?
   a) They can contain alphanumeric characters as well as special characters
   b) It is not an error to declare a variable to be one of the keywords(like goto, static)
   c) Variable names cannot start with a digit
   d) Variable can be of any length

7. The format identifier '%i' is also used for _____ data type.
   a) Char
   b) Int
   c) Float
   d) Double

8. Which data type is most suitable for storing a number 65000 in a 32-bit system?
   a) signed short
   b) unsigned short
   c) long
   d) int

9. Which of the following is a User-defined data type?
   a) typedef int Boolean;
   b) typedef enum {Mon, Tue, Wed, Thu, Fri} Workdays;
   c) struct {char name[10], int age};
   d) all of the mentioned

10. What is short int in C programming?
    a) The basic data type of C
    b) Qualifier
    c) Short is the qualifier and int is the basic data type
    d) All of the mentioned

11. Which is correct with respect to the size of the data types?
    a) char > int > float
    b) int > char > float
    c) char < int < double
    d) double > char > int

12. Which of the following is not a valid variable name declaration?
    a) float PI = 3.14;
    b) double PI = 3.14;
    c) int PI = 3.14;
    d) #define PI 3.14

13. Which of the following cannot be a variable name in C?
    a) volatile
    b) true
    c) friend
    d) export

14. Which keyword is used to prevent any changes in the variable within a C program?
    a) immutable
    b) mutable
    c) const
    d) volatile

15. The name of the variable used in one function cannot be used in another function.
    a) True
    b) False

16. Maximum value of an unsigned integer is
    a) 65535
    b) 32767
    c) -32767
    d) -65535

17. The name having few letter, numbers and special character _(underscore) is called
    a) Keywords
    b) Reserved keywords
    c) Tokens
    d) Identifiers

18. Variable should be a keyword.
    True
    False

19. _____ in C refer to fixed values that do not change during the execution of a program.
    a) Identifier
    b) Variable
    c) Constant
    d) None of these

20. Which of the following is not the arithmetic operator?
    a) +
    b) -
    c) &
    d) *

21. Which of the following is the logical operator?
    a) +
    b) &&
    c) |
    d) /

22. Sizeof operator is used to
    a) return the number of bytes the operand occupies
    b) combine related expressions

c) to construct conditional expressions of the form
d) None of these

23. Comma operator is used to
    a) return the number of bytes the operand occupies
    b) combine related expressions
    c) to construct conditional expressions of the form
    d) None of these

24. Which of the following is/are the C operators?
    a) Logical operator
    b) Arithmetic operator
    c) Relational operator
    d) All of the above

25. Syntax of conditional operator is,
    a) Condition ? true statement : false statement
    b) Condition ? false statement : true statement
    c) Condition : true statement ? false statement
    d) None of these

26. Shift left (<<) and shift right (>>) both operators are
    a) Bitwise operator
    b) Arithmetic operator
    c) Relational operator
    d) Conditional operator

27. What will be the output of following program?

```
#include<stdio.h>
void main()
{
   printf(“Hello World”);
}
```

    a) printf
    b) Error
    c) Hello World
    d) Hello world

28. What is the output of this C code?

```
void main()
{
      int i = 7, j;
      j = i / 4;
      printf("%d", j);
}
```

a) 7
b) 1
c) 4
d) 1.75

29. What is the value of x in this C code?

```
void main()
{
      int x = 4 *5 / 2 + 9;
}
```

a) 6.75
b) 1.85
c) 19
d) 3

30. Type Casting is a way to convert a variable from one data type to another data type.
True
False

31. << is the bitwise operator.
True
False

32. Which of the following C expression is/are true?
a) a x b = c x d
b) a * b = c *d
c) a + b = c x d
d) All of these

33. Which of the following is not the logical operator?
a) &&
b) ||
c) !
d) %

34. What is the output of this C code?

```
#include <stdio.h>
int main()
{
   int x = 2;
   x += 1;
   printf("%d", x);
   return 0;
}
```

a) 2
b) 3
c) 4
d) 1

35. Operation “a=a+1” can also be written as,
    a) a +=1
    b) a = 1
    c) a =+1
    d) a = 1+

36. Operation “a = a * (n + 1)” can also be written as,
    a) a *= (n + 1)
    b) a = (n + 1)*
    c) a * (n + 1) = a
    d) a += n + 1

37. x == 10 + 15 && y < 10, in this expression, as per precedence rule, which operator has highest priority?
    a) <
    b) +
    c) &&
    d) ==

38. What is the output of this C code?

```
void main()
{
        1 < 2 ? printf(“1”): printf(“2”);
}
```

    a) 1
    b) 2

39. <, > , <=, >= are known as
    a) Bitwise operator
    b) Relational Operators
    c) Logical Operators
    d) Assignment Operators

40. In C programming language, which of the following type of operators have the highest precedence
    a) Relational Operators
    b) Equality Operators
    c) Logical Operators
    d) Arithmetic Operator

41. The precedence of arithmetic operators is (from highest to lowest)?
    a) %, *, /, +, -
    b) %, +, /, *, -
    c) +, -, %, *, /
    d) %, +, -, *, /

42. The expression 4 + 6 / 3 * 2 - 2 + 7 % 3 evaluates to
    a) 3
    b) 4
    c) 6
    d) 7

43. Which operators perform operation on data in binary level?
    a) Logical operator
    b) Bitwise operator
    c) Additional operator
    d) None of these

44. An operator used to check a condition and select the value of the condition is called
    a) Logical operator
    b) Decremental operator
    c) Conditional or ternary operator
    d) Bitwise operator

45. Which of the following program takes only integer operands?
    a) +
    b) -
    c) *
    d) %

46. What is the output of this C code?

```
void main()
{
   int x = 4.3 % 2;
   printf("Value of x is %d", x);
}
```

    a) Value of x is 1.3
    b) Value of x is 2
    c) Value of x is 0.3
    d) Compile time error

47. Which of the following data type will throw an error on modulus operation(%)?
    a) Char
    b) Short
    c) Float
    d) int

48. If i j,k are integer variable with values 1,2,3 respectively, then what is the value of the expression

    !((j + k) > (i + 5))

    a) 5
    b) 6
    c) 1
    d) 0

49. What is the type of the below assignment expression if x is of type float, y is of type int?

        y = x + y;

    a) Int
    b) Float
    c) There is no type for an assignment expression
    d) Double

50. Which of the following is an invalid assignment operator?

    a) a %= 10;
    b) a /= 10;
    c) a |= 10;
    d) None of the mentioned

UNIT 3:

Decision Making and Branching:

Decision making with if, if…else statement, Nesting of if…else, else…if ladder, switch statement, Conditional operator, goto statement.

Decision Making and Looping:

Looping – while, for, do… while, Nested loop, Jumps in loop – break and continue.

1. The CONTINUE statement cannot be used with
   a) For
   b) Switch
   c) Do
   d) While

2. Choose correct C while loop syntax.
   a)
```
while(condition)
{
   //statements
}
```
   b)
```
{
  //statements
} while(condition)
```
   c)
```
while(condition);
{
  //statements
}
```
   d)
```
while()
{
  if(condition)
  {
    //statements
  }
}
```

3. Choose a correct C for loop syntax.
   a)
```
for(initialization; condition; increment/decrement)
{
   //statements
}
```
   b)
```
for(declaration; condition; increment/decrement)
{
   //statements
}
```

c) for(declaration; increment/decrement; condition)
```
{
    //statements
}
```

d) for(initialization; condition; increment/decrement);
```
{
   //statements
}
```

4. What is the output of C Program.?
```
int main()
{
   int k;

   for(k=1; k <= 5; k++);
   {
      printf("%d ", k);
   }

   return 0;
}
```
   a) 1 2 3 4 5
   b) 1 2 3 4
   c) 6
   d) 5

5. What is the way to suddenly come out of or Quit any Loop in C Language.?
   a) continue; statement
   b) break; statement
   c) leave; statement
   d) quit; statement

6. In _____loops, first check the condition and then execute the set of statements under the body of loops.
   a) Entry control
   b) Exit control

7. Which of the following loop is an exit control loop?
   a) for
   b) while
   c) do . . . while
   d) All of these

8. C programming allows us to use one loop inside another loop that is called
   a) for loop
   b) nested loop

c) jump
d) while loop

9. In exit control loops, first execute the set of statements and then check the condition.

True
False

10. goto can be used to jump from main to within a function.

True
False

11. Which of the following is an invalid if-else statement?
    a) if (if (a == 1)){}
    b) if (a){}
    c) if ((char) a){}
    d) if (func1 (a)){}

12. Switch statement accepts.
    a) Int
    b) Char
    c) Long
    d) All of the above

13. Which loop is guaranteed to execute at least one time.
    a) For
    b) While
    c) do while
    d) None of the above

14. do-while loop terminates when conditional expression returns?
    a) One
    b) Zero
    c) Non – zero
    d) None of the above

15. c = (n) ? a : b; can be rewritten asexp1 ? exp2 : exp3;
    a) if(n){c = a;}else{c = b;}
    b) if(!n){c = a;}else{c = b;}
    c) if(n){c = b;}else{c = a;}
    d) None of the above

16. Which of the following statement about for loop is true ?
    a) Index value is retained outside the loop
    b) Index value can be changed from within the loop
    c) Goto can be used to jump, out of the loop
    d) All of these

17. if c is a variable initialised to 1, how many times will the following loop be executed?

```
while ((c > 0) && (c < 60))
{
loop body
c ++;
}
```

a) 60
b) 59
c) 61
d) None of these

18. How many times will the following loop be executed if the input data item is 0 1 2 3 4 ?

```
while (c = getchar ()! = 0) { }
```

a) Ininitely
b) Never
c) Once
d) None of these

19. Using goto inside for loop is equivalent to using
a) Continue
b) Break
c) Return
d) None of the above

20. If switch feature is used, then
a) Default case must be present
b) Default case, if used, should be the last case
c) Default case, if used, can be placed anywhere
d) None of the above

21. In _____, the bodies of the two loops are merged together to form a single loop provided that they do not make any references to each other.
a) Loop unrolling
b) Strength reduction
c) Loop concatenation
d) Loop jamming

22. What is the output of this program?

```
void main()
{
   if(!printf(""))
      printf("hello");
   else
      printf("world");
}
```

a) Hello
b) World
c) Compilation Error
d) None of the above

23. A "switch" statement is used to
a) Switch between functions in a program
b) Switch from one variable to another variable
c) To choose from multiple possibilities which may arise due to different values of a single variable
d) All of above

24. How many times the loop will execute?

```
for(int i = 0 ; i < 10 ; i++)
{
   i  =  i*2;
   i--;
}
```

a) 10
b) 5
c) 0
d) Infinite

25. How many times the following loop will be executed?
a) 20
b) 25
c) 26
d) 0
e)

26. Choose the statements that are syntactically correct
a) /* Is /* this a valid */ comment */
b) for (; ;) ;
c) return;
d) both b and c

27. The following program fragment

```
for(i = 3 ; i < 15; i += 3);
     printf(" %d ", i);
```

results in
a) a syntax error
b) an execution error
c) printing of 12
d) printing of 15

28. How many x are printed?

```
for(i=-2,j=5;i < j;i++,j--)

    printf("x");
```

a) 10
b) 5
c) 4
d) 6

29. What is the output of this C code?

```
void main()
{
  int k = 8;
  int m = 7;
  int z = k < m ? k++ : m++;
  printf("%d", z);
}
```

a) 7
b) 8
c) Run time error
d) None of the mentioned.

30. Which expression has to be present in the following? exp1 ? exp2 : exp3;
a) exp1
b) exp2
c) exp3
d) All of the mentioned

31. In a for loop, if the condition is missing, then infinite looping can be avoided by a
a) break statement
b) goto statement
c) return Statement
d) All of the above

32. Choose the correct answers
a) for loops can be nested
b) Nested for loop can't overlap
c) Both (a) & (b)
d) None of the above

33. Consider the following program fragment

```
if (a > b)
if (b > c)
s1 ;
else s2;
```

s2 will be executed if

a) a <= b
b) b > c
c) b <= c and a <=b
d) a> b and b <= c

34. Break statement can be simulated by using
    a) goto
    b) return
    c) exit
    d) any of the above features

35. Consider the following program segment on termination j will have the value

```
i = 6720;
j = 4;
while (( i % j ) == 0)
{
    i = i / j ;
    j = j + 1;
}
```

a) 4
b) 8
c) 9
d) 6720

UNIT 4:

Array:

Need of array, Declaration and initialization of one-dimensional array, Two-dimensional arrays and its initialization, Introduction to multi-dimensional array.

String:

Declaration and initialization of string as array of characters, various input and output methods of string, formatted output of string, String handling functions.

1. What is an Array in C language?
   a) A group of elements of same data type.
   b) An array contains more than one element
   c) Array elements are stored in memory in continuous or contiguous locations.
   d) All the above.

2. What is the maximun number of dimensions an array in C may have?
   a) Two
   b) Eight
   c) Sixteen
   d) Theoratically no limit. The only practical limits are memory size and compilers.

3. How do you initialize an array in C?
   a) int arr[3] = (1,2,3);
   b) int arr(3) = {1,2,3};
   c) int arr[3] = {1,2,3};
   d) int arr(3) = (1,2,3);

4. Which of the following is a correct way to declare a multidimensional array in Java?
   a) int[] arr;
   b) int arr[[]];
   c) int[][]arr;
   d) int[[]] arr;

5. In C, if you pass an array as an argument to a function, what actually gets passed?
   a) Value of elements in array
   b) First element of the array
   c) Base address of the array
   d) Address of the last element of array

6. What are the advantages of arrays?
   a) Objects of mixed data types can be stored
   b) Elements in an array cannot be sorted

c) Index of first element of an array is 1
d) Easier to store elements of same data type

7. What are the disadvantages of arrays?
   a) Data structure like queue or stack cannot be implemented
   b) There are chances of wastage of memory space if elements inserted in an array are lesser than the allocated size
   c) Index value of an array can be negative
   d) Elements are sequentially accessed

8. Assuming int is of 4bytes, what is the size of int arr[15];?
   a) 15
   b) 19
   c) 11
   d) 60

9. In general, the index of the first element in an array is _____
   a) 0
   b) -1
   c) 2
   d) 1

10. Elements in an array are accessed _____
    a) randomly
    b) sequentially
    c) exponentially
    d) logarithmically

11. Which of the following concepts make extensive use of arrays?
    a) Binary trees
    b) Scheduling of processes
    c) Caching
    d) Spatial locality

12. When does the ArrayIndexOutOfBoundsException occur?
    a) Compile-time
    b) Run-time

c) Not an error

d) Not an exception at all

13. Array is an example of _____ type memory allocation.
    a) Compile time
    b) Run time
    c) Both A and B
    d) None of these

14. Size of the array need not be specified, when
    a) Initialization is a part of definition
    b) It is a formal parameter
    c) It is a declaratrion
    d) All of the above

15. The parameter passing mechanism for an array is
    a) call by value
    b) call by reference
    c) call by value-result
    d) None of the above

16. What is the output of c Program.?

```
int main()
{
  int a{};
  a[4] = {1,2,3,4};
  printf("%d",a[0]);
}
```

    a) 1
    b) 2
    c) 4
    d) Compile error.

17. For following definition ,which of the given output is correct?

    Int a[10];

    a) a++
    b) a=a+1
    c) *a++
    d) *a[1]

18. What is the index number of the last element of an array with 29 elements?
    a) 29
    b) 28
    c) 0
    d) Programmer-defined

19. Which of the following gives the memory address of the first element in array foo, an array with 100 elements?
    a) foo[0];
    b) foo;
    c) &foo;
    d) foo[1];

20. Output of following program?

```
#include<stdio.h>
int main()
{
  int a[] = {1, 2, 3, 4, 5, 6};
  int *ptr = (int*)(&a+1);
  printf("%d ", *(ptr-1) );
  return 0;
}
```

    a) 1
    b) 2
    c) 6
    d) Runtime Error

21. Which of the following is a two-dimensional array?
    a) array anarray[20][20];
    b) int anarray[20][20];
    c) int array[20, 20];
    d) char array[20];

22. What are the types of array?
    a) int, long, float, double
    b) struct, enum
    c) char
    d) All the above

23. What is right way to initialize the array?
    a) int num[6] = {2,4,12,5,23,5}

b) int n{} = {2,4,12,5,23,5}
c) int n{6} = {2,4,12}
d) int n(6) = {2,4,12,5,23,5}

24. An array element are always stored in _____ memory locations.
    a) Sequential
    b) Random
    c) Sequential and random
    d) None of these

25. What is meaning of the following statement?

    int *ptr[20]

    a) Array of Integer Pointers of size 20
    b) Integer Array of size 20 pointing to an Integer Pointer
    c) Integer Array to Integer Pointers having size 20
    d) None of these

26. A string that is a formal parameter can be declared
    a) An array with empty braces
    b) A pointer to character
    c) Both A and B
    d) None of the above

27. Which of the following function is more appropriate for reading in a multi-word string?
    a) scanf()
    b) printf()
    c) gets()
    d) puts()

28. What is a String in C Language.?
    a) String is a new Data Type in C
    b) String is an array of Characters with null character as the last element of array.
    c) String is an array of Characters with null character as the first element of array
    d) String is an array of Integers with 0 as the last element of array

29. Which of the following function is used to find the first occurrence of a given string in another string?
    a) strchr()
    b) strrchr()
    c) strstr()
    d) strnset()

30. The library function used to find the last occurrence of a character in a string is
    a) laststr()
    b) strstr()
    c) strnstr()
    d) strrchr()

31. Which among the following is Copying function?
    a) memcpy()
    b) strcopy()
    c) memcopy()
    d) strxcpy()

32. Which function will you choose to join two words?
    a) strcpy()
    b) strcat()
    c) strncon()
    d) memcon()

33. The _____ function appends not more than n characters.
    a) strcat()
    b) strcon()
    c) strncat()
    d) memcat()

34. What will strcmp() function do?
    a) compares the first n characters of the object
    b) compares the string
    c) undefined function
    d) copies the string

35. What is the prototype of strcoll() function?
    a) int strcoll(const char *s1,const char *s2)
    b) int strcoll(const char *s1)
    c) int strcoll(const *s1,const *s2)
    d) int strcoll(const *s1)

36. Which of the following is the variable type defined in header string. h?
    a) sizet
    b) size
    c) size_t
    d) size-t

37. NULL is the macro defined in the header string. h.
    a) true
    b) false

38. What will be the output of the following C code?

```
const char pla[] = "string1";
const char src[] = "string2";
printf("Before memmove place= %s, src = %s\n", pla, src);
memmove(pla, src, 7);
printf("After memmove place = %s, src = %s\n", pla, src);
```

    a) Before memmove place= string1, src = string2 After memmove place = string2, src = string2
    b) Before memmove place = string2, src = string2 After memmove place= string1, src = string2
    c) Before memmove place = string2, src = string1 After memmove place= string2, src =string2
    d) Before memmove place= string1, src = string2 After memmove place=string1, src = string1

39. Which of the following function sets first n characters of a string to a given character?
    a) strinit()
    b) strnset()
    c) strset()
    d) strcset()

40. If the two strings are identical, then strcmp() function returns
    a) 0
    b) 1
    c) -1
    d) None of these

41. What will be the output of the program ?

```
#include<stdio.h>
#include<string.h>
    int main()
{
  printf("%d\n", strlen("123456"));
  return 0;
}
```

a) 6
b) 12
c) 7
d) 2

42. What will be the output of the program ?

```
#include<stdio.h>

int main()
{
   printf(5+"Good Morning\n");
   return 0;
}
```

a) Good Morning
b) Good
c) M
d) Morning

43. All these strncpy(), strstr(), strok(), strchr() function belongs to,_____
    a) <str.h> filr
    b) <ctype.h> file
    c) <array.h>file
    d) <string.h>file

44. The_____ function returns the number of characters that are present before the terminating null character.
    a) strlength()
    b) strlen()
    c) strlent()
    d) strchr()

45. Which of the given function is used to return a pointer to the located character?
    a) strrchr()
    b) strxfrm()
    c) memchar()
    d) strchar()

46. Which of the following function returns a pointer to the located string or a null pointer if string is not found.

a) strtok()
b) strstr()
c) strspn()
d) strrchr()

47. Which operator is suitable for the concatenation function of the string class?
    a) < operator
    b) > operator
    c) + operator
    d) – operator

48. A string is terminated by
    a) Null character
    b) Boolean character
    c) Semicolon
    d) All of them

49. Strings are accessed by the variable of type
    a) int
    b) char
    c) boolean
    d) None of them

50. The sequence of contiguous character in memory, is called as
    a) Function
    b) Array
    c) Character string
    d) All of them

UNIT 5: FUNCTIONS

Introduction to user defined functions, Elements of user defined functions, Return Values and their types, Categories of user defined functions, Call by value, Actual and formal arguments, Nesting of functions, Recursion.

1. Normally in C language how many types of functions are available?
   a) Two
   b) Three
   c) Four
   d) Five

2. What is function?
   a) Function is a block of statements that perform some specific task
   b) Function is a block of code that performs a specific task. It has a name and it is reusable.
   c) Function is the fundamental modular unit. A function is usually designed to perform a specific task.
   d) All of these

3. In C, parameters are always
   a) Passed by value
   b) Passed by reference
   c) Non-pointer variables are passed by value and pointers are passed by reference
   d) Passed by value result

4. Which type of function is included in header file <math.h>?
   a) for testing and converting characters
   b) Mathematical function
   c) To convert string
   d) To work with the string

5. How many times the program will print "COVID19"?

```
#include<stdio.h>
int main()
{
   printf("COVID19");
   main();
   return 0;
}
```

   a) Infinite times

b) 32767 times
c) 65535 times
d) Till stack overflows

6. _____ return type function, return no value
   a) float
   b) recursive
   c) void
   d) integer

7. Functions can be called either by value or reference
   a) True
   b) False

8. Which is not a proper prototype?
   a) int funct(char x, char y);
   b) double funct(char x)
   c) void funct();
   d) char x();

9. Which file has to be included to make use of library function?
   a) Header file
   b) Footer file
   c) Data file
   d) Character file

10. What will be the output of following code?

```
#include <stdio.h>
int main()
{
   static int val=5;
   printf("%d",val--);
   if(val)
      main();
}
```

   a) 5 5 5 5 5
   b) 5 4 3 2 1
   c) Infinite loop
   d) Compiler error

11. Which of the following is the correct syntax to pass an array as a parameter to function.
    a) func(array)[0];
    b) func(array);
    c) func(*array);
    d) func(array[size]);

12. Functions cannot return more than one value at a time.
    a) True
    b) False

13. What is the advantage of use of function?
    a) Helps to avoid repetition of statements
    b) Gives logical clarity of the program
    c) Helps in avoiding repeated programing across program
    d) All of the above

14. Which type of function is included in header file <ctype.h>?
    a) for testing and converting characters
    b) Mathematical function
    c) To convert string
    d) To work with the string

15. The role of preprocessor is
    a) To perform macro substitutions before compilation
    b) To perform compilation
    c) To perform loading function
    d) To add two values.

16. If return type for a function is not specified, it defaults to int
    a) True
    b) False

17. Which of the following is a valid function call (assuming the function exists)?
    a) funct;
    b) funct x, y;
    c) funct();
    d) int funct();

18. Which function is used to use the function, one defined?
    a) Library function
    b) Single function
    c) Calling function
    d) Statement function

19. What is the output of this C code?

```
void F1()
{
printf("hello CGPIT");
}
void main()
{
F1();
}
```

    a) Runtime Error
    b) hello CGPIT
    c) Nothing
    d) Depends on compiler

20. Why function is used in programing language?
    a) Helps to avoid repeating a set of statements many times.
    b) Enhances the logical clarity of the program.
    c) Helps to avoid repeated programming across programs.
    d) All of these

21. Any c program
    a) Must contain at least one function.
    b) Needs input data.
    c) Need not contain any function.
    d) None

22. What is called the function already available in compiled form in C language?
    a) Statement function
    b) Library function
    c) main function
    d) Data function

23. Which of the following is a correct format for declaration of function?
    a) return-type function-name(argument type);
    b) return-type function-name(argument type){}
    c) return-type (argument type)function-name;
    d) all of the mentioned

24. Which of the following is true about return type of functions in C?
    a) Functions can return any type
    b) Functions can return any type except array and functions
    c) Functions can return any type except array, functions and union
    d) Functions can return any type except array, functions, function pointer and union

25. Which of the following function declaration is illegal?
    a) int 1bhk(int);
    b) int 1bhk(int a);
    c) int 2bhk(int*, int []);
    d) all of the mentioned

26. Can we use a function as a parameter of another function?
    a) Yes, and we can use the function value conveniently
    b) Yes, but we call the function again to get the value, not as convenient as in using variable
    c) No, C does not support it
    d) This case is compiler dependent

27. Functions can return structure in C?
    a) True
    b) False

28. Which type of function is included in header file <stdio.h>?
    a) Standard library I/O function
    b) Mathematical function
    c) To convert string
    d) To work with the string

29. Functions can return enumeration constants in C?
    a) True
    b) False

30. Which of the following is a complete function?
    a) int funct();
    b) int funct(int x) {return x=x+1;}
    c) void funct(int) { printf("Hello");
    d) void funct(x) { printf("Hello"); }

31. What will happen after running the following code ?

```
main ()
{
    printf("%p",main);
}
```

    a) some address will be printed.
    b) Error
    c) Will make an infinite loop.
    d) None of these.

32. Why we need functions in C?
    a) Improves the reusability of the code.
    b) To improves the readability of code.
    c) Reduces the size of the code
    d) All of the above

33. Which of the following function calculates the square of 'N' in C ?
    a) sqr(N)
    b) pow(2,N)
    c) pow(N,2)
    d) power(2,N)

34. How many arguments can be used in a function?
    a) 1
    b) 10
    c) Any number
    d) 3

35. It is possible to run program without main () function?
    a) True
    b) False

36. How many main () function we can have in our project?

a) 1
b) 2
c) No Limit
d) Depends on compiler

37. Is it true that a function may have several declaration, but only one definition?
a) True
b) False

38. What is the meaning of below lines?
void sum (int, int);
a) sum is function which takes int arguments
b) sum is a function which takes two int arguments and returns void
c) it will produce compilation error
d) None

39. When a function is recursively called all the automatic variables are stored in a _____
a) Stack
b) Queue
c) Array
d) Linked List

40. In C, what is the meaning of following function prototype with empty parameter list
```
void COVID ()
{
  /* .... */
}
```
a) Function can only be called without any parameter
b) Function can be called with any number of parameters of any types
c) Function can be called with any number of integer parameters
d) Function can be called with one integer parameter.

41. The concept of two functions with same name is known as?
a) Operator Overloading
b) Function Overloading
c) Function Overriding
d) Function renaming

42. The value obtained in the function is given back to main by using _____ keyword.

a) back
b) return
c) static
d) new

43. Can we declare function inside structure of C Programming?
    a) Yes
    b) No
    c) Depends on Compiler
    d) Yes, but run time error

44. Pick the correct statements.
    I. The body of a function should have only one return statement.
    II. The body of a function may have many return statements.
    III. A function can return only one value to the calling environment.
    IV. If return statement is omitted, then the function does its job but returns no value to the calling environment.
    a) I and II
    b) I and III
    c) II and III
    d) II anf IV

45. Functions can return structure in c?
    a) True
    b) False

46. It is necessary to declare the type of a function in the calling program if the function
    a) Returns an integer
    b) Returns a non-integer value
    c) Is not defined in the same file
    d) None of these

47. main() in C program is also a function.
    a) True
    b) False

48. A function can call itself and it is known as
    a) Static
    b) Recursion

c) Dynamic
d) Relative

UNIT 6:

Structure and Union:

Need of user-defined data type, Structure definition, Declaration and initialization of variables, Accessing structure members, Array of structures, Unions.

Pointers:

Introduction to pointer, Declaration, Initialization, Access value using pointer, Indirection (*) operator, Pointers in expressions.

1. To declare a structure which keyword is used?
   a) struc
   b) structure
   c) struct
   d) stru

2. What is a structure in C language?
   a) A structure is a collection of elements that can be of same data type.
   b) A structure is a collection of elements that can be of different data type.
   c) Elements of a structure are called members.
   d) All the above

3. What is a union in C language?
   a) A union is a collection of elements that can be of same data type.
   b) A union is a collection of elements that can be of different data type.
   c) Elements of a union are called members.
   d) All the above

4. What is the size of a C structure?
   a) C structure is always 128 bytes.
   b) Size of C structure is the total bytes of all elements of structure.
   c) Size of C structure is the size of largest element.
   d) None of the above

5. What is the size of a C union?
   C union is always 128 bytes.
   Size of C union is the total bytes of all elements of structure.
   Size of C union is the size of largest element.
   None of the above

6. Structure member is used using which operator?
   a) .
   b) &

c) +
d) ,

7. Union member is used using which operator?
   a) .
   b) &
   c) +
   d) ,

8. What is the output of the following code?

```
main()
{
    struct student
    {
        int rollno;
        float present;
    };
struct student covid={101,97};
printf("%d %f",covid.rollno, covid.percent);

}
```

   a) Error
   b) 0,0
   c) 101,97.000000
   d) covid, covid

9. What will be the size of structure?

```
    Struct student
    {
        int rollno;
        float percentage;

    };
```

   a) float size
   b) Integer size
   c) size of integer +size of float
   d) 0

10. What is the similarity between a structure and union?
    a) Both of them let you define new values

b) Both of them let you define new pointers
c) Both of them let you define new data types
d) Both of them let you define new structures

11. Which of the following are a collection of different data types?
    a) Structure
    b) Pointer
    c) Union
    d) Both a) and c)

12. Which of the following cannot be a structure member?
    a) Function
    b) Array
    c) Another structure
    d) None of these

13. What is the size of following C union.?(assume the size of int=2 ,size of float=4,size of char=1)

```
union U1
{
    int x;
    float y;
    char c;
} ;
```

    a) 7
    b) 4
    c) 2
    d) 1

14. Which of the following is collection of different datatypes?
    a) String
    b) Array
    c) Structure
    d) Files

15. Choose a correct statement about C structures.
    a) Structure elements can be initialized at the time of declaration.
    b) Only integer members of structure can be initialized at the time of declaration.
    c) Structure members cannot be initialized at the time of declaration.
    d) None of the above

16. For accessing structure members using pointer, which operator is use?
    a) Pointer operator (&)
    b) Pointer operator (*)
    c) Dot operator (.)
    d) Arrow operator (->)

17. Choose a correct statement about C structure.?

```
int main()
{
   struct ship
   {

   };
   return 0;
}
```

    a) There is no use of defining an empty structure
    b) It is wrong to define an empty structure.
    c) Member variables can be added to a structure even after its first definition.
    d) None of the above

18. Can we declare function inside structure of C Programming?
    Yes
    No

19. Which of the following access specifiers we can use with structure?
    a) protected
    b) private
    c) public
    d) All of these

20. Which of the following accesses a variable in structure *b?
    a) b->var;
    b) b.var;
    c) b-var;
    d) b>var;

21. Can we compare two structures using any built-in operator?
    Yes
    No

22. Which of the following operation is illegal in structures?
    a) Pointer to a variable of the same structure
    b) Typecasting of structure

c) Dynamic allocation of memory for structure
d) All of the mentioned

23. Which properly declares a variable of struct S1?
    a) struct S1;
    b) struct S1 var;
    c) S1;
    d) int S1;

24. Which of following data types allowed inside a structure.?
    a) char
    b) union
    c) double
    d) All the above

25. Members of a union are accessed as
    a) union-pointer->member
    b) union-name.member
    c) both union-name.member & union-pointer->member
    d) none of the mentioned

26. Which of the following operators can be applied on structure variables?
    a) Assignment (=)
    b) Equality comparison (==)
    c) Both of the above
    d) None of these

27. A pointer
    a) A keyword used to create variables
    b) A variable that stores address of other variable
    c) A variable that stores address of an instruction
    d) All of the above

28. The statement int **x;
    a) is syntactically and semantically correct
    b) is illegal
    c) is legal but meaningless
    d) None of these.

29. The operator used to get value at address stored in a pointer variable is
    a) &
    b) &&
    c) *
    d) %

30. What will be the output of the following C code?

```
#include <stdio.h>
   int x = 0;
   void main()
   {
      int *ptr = &x;
      printf("%p\n", ptr);
      x++;
      printf("%p\n ", ptr);

   }
```

a) Compile time error
b) Same address
c) Varies
d) Different address

31. The operators used with pointers are….?
    a) & and *
    b) + and /
    c) # and *
    d) & and +

32. Which one is the address operator in following?
    a) %
    b) *
    c) &
    d) &&

33. What will be the output of the following C code?

```
#include <stdio.h>
   void main()
   {
      int x = 0;
      int *ptr = &x;
      printf("%d\n", *ptr);
   }
```

a) 0
b) Address of x
c) Run time error

d) Junk value

34. Which of the following operator is not used with pointers
    a) &
    b) ->
    c) >>
    d) *

35. What is (void*)0 ?
    a) Error
    b) Representation of NULL pointer
    c) Representation of void pointer
    d) None of above

36. Which operation is not allowed on pointers?
    a) Incrementing a pointer variable
    b) multiplication of pointer variable by number
    c) Adding a number to pointer variable
    d) difference of two pointer variables

37. Prior to using a pointer variable it should be
    a) Both declared and initialized
    b) Declared
    c) Initialized
    d) None of these

38. With the use of pointer program execution becomes?
    a) Faster
    b) Slower
    c) Remains same
    d) None of these

39. In C a pointer variable to an integer can be created by the declaration…..
    a) int +p
    b) int p*
    c) int $p
    d) int *p

40. The declaration

    int (*p)[5];

means
    a) p is a pointer to a 5 elements integer array.

b) The same as int *p
c) p is one dimensional array of size 5, of pointers to integers.
d) None of these.

41. Comment on the following?

```
const int *ptr;
```

a) We cannot change the pointer **ptr** itself.
b) We cannot change the value pointed by **ptr**.
c) Both of the above
d) We can change the pointer as well as the value pointed by it.

42. Chose the correct statement for following code?

```
int *ptr, p;
```

a) ptr is pointer to integer, p may or may not be.
b) ptr is a pointer to integer, p is not.
c) ptr and p, both are pointers to integer.
d) ptr and p both are not pointers to integer.

43. What is the keyword used to declare a C file pointer.?
a) File
b) FILE
c) FILEFP
d) Filefp

44. A pointer variable can be
a) Returned by a function
b) Passed to a function
c) Can be assigned an integer value
d) Changed within a function

45. Pointer _____ the execution speed of the program.
a) Increases
b) Decrease
c) Do not effect
d) None of the above