Course Code: 23CS0501 **R23**

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY:: PUTTUR

Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject with Code : Introduction to Programming(23CS0501) **Year &Sem:** I-B.Tech & I-Sem

Course & Branch: B.Tech-Common to All Regulation: **R23**

UNIT-I

1		Explain the basic organization of a computer, focusing on the roles of the Arithmetic Logic Unit (ALU), memory, input-output units, and the program counter	**[L2,CO1]**	**10M**
2	**a)**	Define algorithm. Explain the characteristics of an algorithm	**[L1,CO1]**	**5M**
	b)	Design an algorithm for finding average of three number	**[L3,CO1]**	**5M**
3	**a)**	Define a flow chart. List the different symbols in flowchart.	**[L1,CO1]**	**5M**
	b)	Explain the flow chart symbols with example.	**[L2,CO1]**	**5M**
4	**a)**	Define a pseudo code and explain with an example.	**[L1,CO1]**	**5M**
	b)	Explain how to compile and execution of a program with neat diagram.	**[L2,CO1]**	**5M**
5	**a)**	What is meant by data type? List the different data types with their sizes.	**[L1,CO1]**	**5M**
	b)	Define a variable. Write the variable declaration. What are the rules for declaring a variable?	**[L1,CO1]**	**5M**
6		Define constant. List and explain the different constants in C language.	**[L1,CO1]**	**10M**
7		List and explain the Various operators with example.	**[L2,CO1]**	**10M**
8	**a)**	What is meant by type conversion? Explain the different types conversion techniques with example	**[L2,CO1]**	**5M**
	b)	Differentiate Top-down and bottom-up approach.	**[L4,CO1]**	**5M**
9	**a)**	State the difference between Time complexity and Space Complexity.	**[L4,CO1]**	**5M**
	b)	Compose a C program for to perform all the arithmetic operations.	**[L6,CO1]**	**5M**
10	**i)**	Define an algorithm.	**[L1,CO1]**	**2M**
	ii)	List the different flow chart symbols.	**[L1,CO1]**	**2M**
	iii)	Define with example any four operators in C.	**[L1,CO1]**	**2M**
	iv)	What is meant by type conversion?	**[L1,CO1]**	**2M**
	v)	Describe input and output statements in C.	**[L2,CO1]**	**2M**

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UNIT-II

1	**a)**	List the different decision statements available in C	**[L1, CO2]**	**5M**
	b)	Discuss each decision statement with suitable example	**[L2, CO2]**	**5M**
2		Write the syntax and illustrate the following statements with example i) if Statement ii) if else Statement iii) else if ladder iv) Nested if statements v) Switch Case	**[L3, CO2]**	**10M**
3	**a)**	Develop a C Program to find whether the given number is even or odd	**[L6, CO2]**	**5M**
	b)	Create a C Program to find greatest of three numbers using nested if else statement	**[L6, CO2]**	**5M**
4	**a)**	Write a C Program to reverse a given number.	**[L6, CO2]**	**5M**
	b)	Apply switch case statement to write a C program that performs arithmetic operations	**[L3, CO2]**	**5M**
5	**a)**	Discuss the different looping statements with syntax in C	**[L3, CO2]**	**5M**
	b)	Explain the For Loop with syntax and example.	**[L2, CO2]**	**5M**
6	**a)**	Differentiate While and Do-while loop with example.	**[L4 ,CO2]**	**5M**
	b)	Construct a C Program to Perform Fibonacci series using for loop	**[L6, CO2]**	**5M**
7	**a)**	Explain a nested for loop with syntax.	**[L2, CO2]**	**5M**
	b)	Compose a c program to print following series. * * * * * * * * * *	**[L6, CO2]**	**5M**
8	**a)**	Describe the below looping statements with example i. While Loop ii. Do-while loop iii. For loop	**[L2, CO2]**	**5M**
	b)	Discuss about break and continues statements in C.	**[L3, CO2]**	**5M**
9	**a)**	Compose a C program to print following series **1** **2 2** **3 3 3** **4 4 4 4**	**[L6, CO2]**	**5M**
	b)	Compose a C program to print following series * * * * * * * * * *	**[L6, CO2]**	**5M**
10	**i)**	What is meant by control statement?	**[L1, CO2]**	**2M**
	ii)	State the syntax for nested if else statement.	**[L1, CO2]**	**2M**
	iii)	Compare while and do-while statement.	**[L4, CO2]**	**2M**
	iv)	Describe the syntax of for Loop.	**[L2, CO2]**	**2M**
	v)	Summarize break and continue keyword.	**[L2, CO2]**	**2M**

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UNIT-III

1	**a)**	Define an Array. Write the syntax for declaring and initializing array with example.	**[L1, CO2]**	**5M**
	b)	Describe the array subscript in C with example	**[L2, CO2]**	**5M**
2	**a)**	List the different types of arrays.	**[L1, CO2]**	**5M**
	b)	Explain the One-Dimensional array with example.	**[L2, CO2]**	**5M**
3	**a)**	Explain the Two-Dimensional array with example	**[L2, CO2]**	**5M**
	b)	Compose a C program for Transpose of a given matrix	**[L6, CO2]**	**5M**
4	**a)**	Develop a C program to display array of elements in given and reverse order.	**[L3, CO2]**	**5M**
	b)	Compose a C program to find the sum of diagonal elements in an array	**[L6, CO2]**	**5M**
5	**a)**	Create a C program to perform the addition of two matrices.	**[L6, CO2]**	**5M**
	b)	Compose a C program to calculate sum of an array elements.	**[L6, CO2]**	**5M**
6	**a)**	Create a C program to count the vowels, consonants, special symbols and space in a given string.	**[L6, CO3]**	**5M**
	b)	Create a C program to perform the following string library function strlen(), strcpy(), strcat(), strcmp().	**[L6, CO3]**	**5M**
7	**a)**	List and discuss the different string handling functions.	**[L2, CO3]**	**5M**
	b)	Apply string handling functions in C program.	**[L3, CO3]**	**5M**
8	**a)**	Illustrate a C program to find reverse of a given string without using string handling functions.	**[L2, CO3]**	**5M**
	b)	Summarize the following i) strcat ii) strcmp iii) strrev iv) strcpy	**[L3, CO3]**	**5M**
9	**a)**	Differentiate Character and String with example.	**[L4, CO3]**	**5M**
	b)	Develop a C program that implement strlen(), strlwr() and strupr().	**[L3, CO3]**	**5M**
10	**i)**	Define 1D array.	**[L1, CO3]**	**2M**
	ii)	Recall 2D array.	**[L1, CO3]**	**2M**
	iii)	Explain how to initialize the 1D array.	**[L2, CO3]**	**2M**
	iv)	Define String.	**[L1, CO3]**	**2M**
	v)	List the different string handling functions	**[L1, CO3]**	**2M**

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UNIT-IV

1	**a)**	Define pointer. Write the syntax for declaring pointer with example.	**[L1, CO4]**	**5M**
	b)	Describe about pointers and arrays	**[L2, CO4]**	**5M**
2	**a)**	Explain the concept of array of pointers with examples	**[L2,CO4]**	**5M**
	b)	What are the features of pointers? Write a C program to print address of a variable	**[L1,CO4]**	**5M**
3	**a)**	Explain the concept of pointer to pointers with examples	**[L2,CO4]**	**5M**
	b)	Discuss the concept of void pointers with examples.	**[L2,CO4]**	**5M**
4	**a)**	List and describe about dynamic memory management functions in C	**[L1,CO4]**	**5M**
	b)	Summarize the following with example i. malloc(), ii. calloc(), iii. realloc() and iv. free()	**[L2,CO4]**	**5M**
5	**a)**	How can pointer works on strings?	**[L2,CO4]**	**5M**
	b)	Examine the access to address of the pointer with example?	**[L3,CO4]**	**5M**
6	**a)**	Define structure and give the general syntax for structure with suitable example program.	**[L1,CO6]**	**5M**
	b)	Illustrate the procedure to declare and initialize a structure with an example C program	**[L2,CO6]**	**5M**
7	**a)**	Define structure within a structure? Explain with an example.	**[L2,CO6]**	**5M**
	b)	Describe about array of structures	**[L2,CO6]**	**5M**
8	**a)**	Apply and explain the concept of pointers to structure in a C program	**[L3,CO6]**	**5M**
	b)	Explain about nested structures	**[L2,CO6]**	**5M**
9	**a)**	Illustrate the use of type def with suitable example.	**[L2,CO4]**	**5M**
	b)	Explain about Enumerated data type.	**[L2,CO4]**	**5M**
10	**i)**	What is pointer?	**[L1,CO4]**	**2M**
	ii)	Explain how to assign an address to pointer variable.	**[L2,CO4]**	**2M**
	iii)	Define void pointer.	**[L1,CO4]**	**2M**
	iv)	What is meant by structure and write the syntax for structure declaration.	**[L1,CO6]**	**2M**
	v)	Differentiate structure and union.	**[L4,CO6]**	**2M**

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UNIT-V

1	**a)**	Define function. Explain the types of functions with an example	**[L2, CO5]**	**5M**
	b)	Develop a C program to swap two numbers using functions	**[L6, CO5]**	**5M**
2	**a)**	Explain the library functions available in C?	**[L2, CO5]**	**5M**
	b)	Discuss in detail how communication is established among functions in C language?	**[L2, CO5]**	**5M**
3	**a)**	Distinguish between call by value and call by reference with an example programs	**[L4, CO5]**	**5M**
	b)	How to use Array as Function argument? Explain with an example program.	**[L1, CO5]**	**5M**
4	**a)**	Create a c program for addition of two numbers using function	**[L6, CO5]**	**5M**
	b)	Describe about scope and distinguish between local and global variable	**[L4, CO5]**	**5M**
5	**a)**	Discuss - how to modify parameters inside functions using pointers.	**[L2, CO5]**	**5M**
	b)	Compose a C program to swap two numbers using call by reference.	**[L6, CO5]**	**5M**
6		Define File. Explain different file operations with examples	**[L2, CO6]**	**10M**
7	**a)**	List the different file operations in C with their definition and syntax	**[L1, CO6]**	**5M**
	b)	Explain read () and write () operation with examples.	**[L2, CO6]**	**5M**
8		Summarize the following with examples. i) Read() ii) write() iii)append()	**[L2, CO6]**	**10M**
9		Illustrate a C program to append the Content of file at the end of another file	**[L2, CO6]**	**10M**
10	**i)**	What is meant by function and list the different types of function.	**[L1, CO5]**	**2M**
	ii)	What is meant by call-by-value?	**[L1, CO5]**	**2M**
	iii)	Define Call-by-reference.	**[L1, CO5]**	**2M**
	iv)	Define file.	**[L1, CO6]**	**2M**
	v)	List the different file operations in C.	**[L1, CO6]**	**2M**

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BIT BANK (OBJECTIVE)

Subject with Code :Introduction to Programming(23CS0501) **Course & Branch**: Common to all
Year &Sem: I-B)Tech & I-Sem **Regulation:** R23

UNIT –I

1. Which generation of computers used vacuum tubes for processing? [ ]
   A) First generation B) Second generation
   C) Third generation D) Fourth generation
2. The first electronic general-purpose computer is: [ ]
   A) ENIAC B) UNIVAC C) EDVAC D) ABC
3. The development of the C programming language was primarily done by: [ ]
   A) Dennis Ritchie B) Bill Gates C) Tim Berners-Lee D) Linus
4. What symbol is used to represent a process in a flowchart? [ ]
   A) Diamond B) Rectangle C) Oval D) Parallelogram
5. What is the purpose of pseudocode in programming? [ ]
   A) Execute a program B) Design a program algorithm
   C) Debug a program D) Compile a program
6. What is the primary advantage of using pseudocode? [ ]
   A) It can be directly executed by a computer.
   B) It is easy to understand and independent of programming languages.
   C) It is suitable for complex mathematical calculations.
   D) It is more efficient than traditional programming languages.
7. What is an algorithm? [ ]
   A) A type of programming language B) A Program error
   C) A hardware component in a computer
   D) A step-by-step procedure or formula for solving a problem
8. What is the purpose of a compiler in C programming? [ ]
   A) To execute the program B) To convert the source code into machine code
   C) To debug the program D) To document the program
9. What is the primary function of the main() function in a C program? [ ]
   A) To include libraries B) To declare variables
   C) To execute the program D) To perform input/output operations
10. What is the size of the 'char' data type in C? [ ]
    A) 4 bytes B) 2 bytes C) 1 byte D) 8 bytes
11. In C, how do you initialize a variable at the time of declaration? [ ]
    A) Using the init keyword B) Using the initialize keyword
    C) By assigning a value using the '=' operator D) Initialization is not allowed in C
12. Which of the following is a valid variable name in C? [ ]
    A) 123variable B) _myVar C) float D) break

13. In C, what is the keyword used to declare a constant? [ ]
    A) constant B) readonly C) const D) immut
14. Which function is used to print a message to the standard output in C? [ ]
    A) printf() B) print() C) display() D) echo()

15. What is the escape sequence for a new line in C? [ ]
A) \n B) \t C) \r D) \l
16. To print the value of an integer variable x, which format specifier should be used in the printf() function? [ ]
A) %d B) %f C) %c D) %s
17. What is the process of converting a value from one data type to another called in C? [ ]
A) Data casting B) Type conversion C) Variable conversion D) Value transformation
18. Which of the following is the syntax for explicit type casting in C? [ ]
A) (type)value B) type(value) C) convert(type, value) D) value(type)
19. What is the purpose of the (float) cast in C? [ ]
A) Converts a value to an integer B) Converts a value to a float
C) Converts a value to a character D) Converts a value to a double
20. In C, what is the effect of casting a floating-point variable to an integer? [ ]
A) Truncates the decimal part B) Rounds to the nearest integer
C) Converts to the ASCII value D) Converts to a string
21. Which casting is performed automatically by the compiler without any explicit request from the programmer? [ ]
A) Implicit casting B) Explicit casting C) Forced casting D) Automatic casting
22. What is the result of adding an integer and a float without any explicit casting in C?[ ]
A) Compiler error B) Integer C) Float D) Double
23. In algorithm analysis, what does the term "efficiency" refer to? [ ]
A) The size of the algorithm B) The time and space requirements of the algorithm
C) The number of steps in the algorithm D) The simplicity of the algorithm
24. Which of the following is a property of a good algorithm design? [ ]
A) Redundancy B) Simplicity C) Unpredictability D) Inefficiency
25. What does the term "finite" mean in the context of algorithm design? [ ]
A) The algorithm can only handle a limited range of inputs.
B) The algorithm terminates after a finite number of steps.
C) The algorithm is simple and easy to understanD)
D) The algorithm produces a finite output.
26. What is the purpose of the "Input" characteristic in algorithm design? [ ]
A) It specifies the output of the algorithm. B) It defines the problem to be solveD)
C) It determines the efficiency of the algorithm. D) It limits the size of the algorithm.
27. Which of the following is not a characteristic of a good algorithm? [ ]
A) Finiteness B) Redundancy C) Clarity D) Effectiveness
28. What is the primary purpose of a variable in C? [ ]
A) To store constants B) To store data temporarily during program execution
C) To perform mathematical operations D) To define functions
29. In C, how is a variable declared without initializing its value? [ ]
A) int x = 0; B) int x; C) variable x; D) initialize x;
30. Which of the following is a valid way to initialize a variable in C? [ ]
A) int x; B) int x = "Hello"; C) int x = 5; D) int x = 3.14;
31. Which data type in C is used to store characters? [ ]
A) char B) int C) float D) double
32. What is the purpose of the 'void' data type in C? [ ]
A) It represents an empty variable. B) It indicates the absence of a data type.
C) It is used to declare functions that do not return a value. D) It is used for string manipulation.
33. Which of the following is a correct way to declare a constant in C? [ ]

A) constant int x = 5; B) const x = 5;
C) define x 5; D) const int x = 5;

34. What is the main idea behind the top-down approach in software development? [ ]
A) Start with small modules and gradually combine them into larger ones
B) Begin with the entire system and then break it down into smaller components
C) Start coding immediately without planning
D) Focus on individual functions without considering the overall structure

35. Which approach is considered more suitable for iterative and incremental development processes? [ ]
A) Top-down approach B) Bottom-up approach
C) Both approaches are equally suitable D) Neither approach supports iterative development

36. What does time complexity of an algorithm represent? [ ]
A) The actual time taken by the algorithm to execute
B) The number of basic operations performed by the algorithm
C) The amount of memory space used by the algorithm
D) The input size of the algorithm

37. In a flowchart, what does an arrow connecting two shapes represent? [ ]
A) Data flow B) Control flow C) Decision flow D) Process flow

38. What is the purpose of a terminator shape in a flowchart? [ ]
A) To represent a process B) To indicate the start or end of a process
C) To represent a decision point D) To show data input/output

39. Which flowchart symbol is used to represent a loop or repetition? [ ]
A) Oval B) Rectangle C) Diamond D) Parallelogram

40. What is the purpose of using connectors in a flowchart? [ ]
A) To join multiple processes into a single process B) To represent a decision point
C) To connect different pages of a flowchart D) To show the flow of data

UNIT –II

1. What will be the output of the following C code? [ ]

```
#include <stdio.h>
int main() {
   printf("Hello, World!\n");
   return 0;
}
```

A) Hello B) World! C) Hello, World! D) No output

2. How do you end a C statement? [ ]
   A) Semicolon (;) B) Colon (:) C) Period (.) D) Comma (,)
3. What is the purpose of the printf function in C? [ ]
   A) To read input from the user. B) To print output to the console.
   C) To perform mathematical calculations. D) To declare variables.
4. What will be the value of result after the following code is executed? [ ]

```
int x = 5, y = 3;
int result = x + y;
```

   A) 8 B) 15 C) 3 D) Error
5. Which of the following is a valid way to comment out a single line in C? [ ]
   A) // This is a comment B) /* This is a comment */
   C) -- This is a comment D) # This is a comment
6. How do you include the standard input/output library in C? [ ]
   A) #include <stdliB)h> B) #include <inputoutput.h>
   C) #include <stdio.h> D) #import <stdio.h>
7. Which operator is used for assigning a value to a variable in C? [ ]
   A) == B) = C) := D) ->
8. What is the purpose of the else keyword in an if-else statement? [ ]
   A) It represents an alternative condition. B) It terminates the program.
   C) It starts a new if statement. D) It is not a valid keyword in C)
9. What is the correct syntax for an if statement in C? [ ]
   A) if condition { /* code */ } B) if (condition) { /* code */ }
   C) if {condition} /* code */ D) if condition: /* code */ ;
10. How do you write a switch statement in C? [ ]
    A) switch (condition) { /* code */ } B) case condition: /* code */ ;
    C) if (condition) { /* code */ } else { /* code */ } D) switch {condition} /* code */
11. In C, what is the role of the break statement in a switch statement? [ ]
    A) It ends the entire program. B) It skips the current iteration of the loop.
    C) It terminates the switch statement. D) It continues to the next case without checking conditions.
12. What is the purpose of the && operator in C? [ ]
    A) Logical AND B) Bitwise AND C) Logical OR D) Bitwise OR
13. What does the following C code snippet do? [ ]

```
int x = 10;
if (x > 5) {
   printf("Hello, World!\n");
}
```

    A) Prints "Hello, World!" because x is greater than 5.
    B) Prints nothing because the condition is false.
    C) Results in a compilation error.
    D) Prints "Hello, World!" regardless of the value of x.

14. What does the following C code snippet accomplish? [ ]

```
int num = 15;
if (num % 2 == 0)
   printf("Even");
else
   printf("Odd");
```

A) Checks if num is even and prints "Even" if true.
B) Checks if num is odd and prints "Odd" if true.
C) Prints "Even" regardless of the value of num.
D) Prints "Odd" regardless of the value of num.

15. What does the ?: operator represent in C? [ ]
A) Ternary operator B) Bitwise operator
C) Logical operator D) Increment operator

16. What does the following C code snippet do? [ ]

```
int num = 0;
while (num < 5) {
   printf("%d ", num);
   num++;
}
```

A) Prints numbers from 0 to 4.
B) Prints numbers from 1 to 5.
C) Prints numbers from 0 to 5.
D) Results in an infinite loop.

17. Which loop construct is used for definite iteration in C? [ ]
A) while B) for C) do-while D) repeat-until

18. What does the following C code snippet do? [ ]

```
for (int i = 0; i < 5; i++) {
   printf("%d ", i);
}
```

A) Prints numbers from 0 to 4.
B) Prints numbers from 1 to 5.
C) Prints numbers from 0 to 5.
D) Results in a compilation error.

19. How is the do-while loop different from the while loop in C? [ ]
A) do-while is used for infinite loops, while is used for definite loops.
B) In do-while, the loop body is executed at least once, regardless of the condition.
C) do-while cannot be used for looping in C)
D) There is no difference; they can be used interchangeably.

20. What is the purpose of the break statement in a loop in C? [ ]
A) Skips the current iteration and continues with the next one.
B) Exits the loop immediately, regardless of the loop condition.
C) Terminates the entire program.
D) Skips the loop body and jumps to the next iteration.

21. How do you create an infinite loop in C? [ ]
A) for (;;) { /* code */ } B) while (1) { /* code */ }
C) do { /* code */ } while (true); D) All of the above.

22. What does the continue statement do in a loop in C? [ ]
A) Exits the loop. B) Skips the rest of the loop body and continues with the next iteration.
C) Jumps to the beginning of the loop. D) Breaks out of the loop.

23. What is the output of the following C code? [ ]

```
int i = 0;
while (i < 3) {
   printf("%d ", i);
   i++;
}
```

A) 0 1 2 B) 1 2 3 C) 0 1 2 3 D) 0 1 2 3 4

24. In the for loop syntax (for (initialization; condition; update)), when is the initialization part executed? [ ]
A) Before each iteration. B) After the loop body.
C) Once, before the first iteration. D) Only if the condition is false.
25. Which loop construct is suitable when you want the loop body to execute at least once, regardless of the condition? [ ]
A) while B) for C) do-while D) repeat-until
26. In which type of loop are the break and continue statements commonly used? [ ]
A) while loop B) for loop C) do-while loop D) All of the above
27. What does the continue statement do in a loop in C? [ ]
A) Exits the loop. B) Skips the rest of the loop body and continues with the next iteration.
C) Jumps to the beginning of the loop. D) Breaks out of the loop.
28. Which statement is used to terminate the entire program in C? [ ]
A) terminate; B) exit(); C) break; D) end;
29. In a nested loop structure, if break is used in the inner loop, what does it affect? [ ]
A) Exits both the inner and outer loops. B) Exits only the inner loop.
C) Exits only the outer loop. D) Has no effect on the loops.
30. What is the output of the following C code? [ ]

```
for (int i = 0; i < 5; i++) {
    if (i == 3)
      break;
    printf("%d ", i);
}
```

A) 0 1 2 B) 0 1 2 3 C) 0 1 2 3 4 D) 3 4

31. In a for loop, where is the continue statement typically placed? [ ]
A) Before the loop body. B) After the loop body.
C) Before the update statement. D) After the initialization statement.
32. What happens if the continue statement is encountered in a do-while loop in C? [ ]
A) Exits the loop. B) Skips the rest of the loop body and continues with the next iteration.
C) Jumps to the beginning of the loop. D) Breaks out of the loop.
33. Which statement is used to skip the current iteration and jump to the next one in a loop? [ ]
A) skip; B) pass; C) jump; D) continue;
34. What is the output of the following C code? [ ]

```
int i = 0;
while (i < 5) {
   if (i % 2 == 0)
      printf("%d ", i);
   i++;
}
```

A) 0 2 4 B) 1 3 5 C) 0 1 2 3 4 D) 0 1 2 3 4 5

35. How do you create a switch statement with three cases in C? [ ]
A) switch (value) { case 1: /* code */ case 2: /* code */ case 3: /* code */ }
B) switch (value) { case 1: /* code */ break; case 2: /* code */ break; case 3: /* code */ break; }

C) switch (value) { case 1: /* code */ case 2: /* code */ case 3: /* code */ break; }
D) switch (value) { case 1: /* code */ } { case 2: /* code */ } { case 3: /* code */ }

36. In C, what is the purpose of the else if statement? [ ]
A) It is used to check multiple conditions sequentially.
B) It is a replacement for the if statement.
C) It is used for nested loops.
D) It is used for logical operations.

37. What will be the output of the following C code? [ ]

```
for (int i = 1; i <= 5; i++) {
   if (i % 2 == 0)
      continue;
   printf("%d ", i);
}
```

A) 1 3 5 B) 2 4 C) 1 2 3 4 5 D) 1 4

38. Which statement is used to exit the entire program in C? [ ]
A) exit(); B) return 0; C) terminate; D) break;

39. What is the purpose of the default case in a switch statement in C? [ ]
A) It represents the initial state of the switch.
B) It is executed when none of the other case values match.
C) It is a placeholder for comments.
D) It indicates an error in the switch structure.

40. Which of the following is a correct way to use the break statement in a for loop in C? [ ]
A) for (int i = 0; i < 10; i++) { if (i == 5) break; }
B) for (int i = 0; i < 10; i++) break;
C) for (int i = 0; i < 10; i++) { break; }
D) for (int i = 0; i < 10; i++) { if (i < 5) continue; else break; }

UNIT - III

1. What is an array in C? [ ]
   A) A collection of random variables
   B) A collection of elements of the same type stored in contiguous memory locations
   C) A collection of elements of different types
   D) A variable that can hold only one value at a time
2. How do you declare a one-dimensional array in C? [ ]
   A) int array[10]; B) array = {1, 2, 3, 4, 5};
   C) array(10) = {1, 2, 3, 4, 5}; D) int array = [10];
3. What is the index of the first element in an array in C? [ ]
   A) 0 B) 1 C) -1 D) Depends on the size of the array
4. How do you access the third element in an array named numbers in C? [ ]
   A) numbers(2) B) numbers[2] C) numbers.3 D) numbers.at(2)
5. Which of the following is the correct syntax to initialize an array in C? [ ]
   A) int numbers[] = {1, 2, 3, 4, 5}; B) int numbers[5] = (1, 2, 3, 4, 5);
   C) int numbers{} = {1, 2, 3, 4, 5}; D) numbers[1, 2, 3, 4, 5];
6. What will be the output of the following code? [ ]
   int values[] = {1, 2, 3, 4, 5};
   printf("%d", values[3]);
   A) 3 B) 4 C) 5 D) 2
7. How do you find the length of an array in C? [ ]
   A) Using the length property of the array
   B) By subtracting the first index from the last index
   C) Using the sizeof operator divided by the size of each element
   D) By using the lengthof function
8. What is the purpose of the "heap" in the memory model of C? [ ]
   A) It stores global variables. B) It manages function call information.
   C) It is used for dynamic memory allocation. D) It stores local variables.
9. What is the purpose of the "stack" in the C memory model? [ ]
   A) It stores dynamically allocated memory. B) It manages function call information.
   C) It stores global variables. D) It is used for file I/O operations.
10. Which memory allocation is done during compile-time in C? [ ]
    A) Static memory allocation B) Dynamic memory allocation
    C) Automatic memory allocation D) Manual memory allocation
11. Where are function parameters and local variables typically stored in C? [ ]
    A) Heap B) Stack C) Data segment D) Register
12. Where is the code segment stored in the C memory model? [ ]
    A) Heap B) Stack C) Data segment D) Text segment
13. Which memory allocation is done during runtime in C? [ ]
    A) Static memory allocation B) Dynamic memory allocation
    C) Automatic memory allocation D) Manual memory allocation
14. What is the purpose of the "data segment" in the C memory model? [ ]
    A) It stores constants and literal strings. B) It manages the execution of the program.
    C) It stores function call information. D) It holds the program instructions.
15. What does the following C code snippet do? [ ]
    int numbers[5] = {1, 2, 3, 4, 5};
    int sum = 0;
    for (int i = 0; i < 5; i++) {

```
    sum += numbers[i];
}
printf("Sum: %d", sum);
```

A) Prints the sum of numbers from 1 to 5
B) Prints the sum of elements in the numbers array
C) Initializes the sum variable with the value 15
D) Multiplies each element in the numbers array by 2

16. What does the following C code snippet do? [ ]

```
int nums[] = {3, 1, 4, 1, 5};
int n = sizeof(nums) / sizeof(nums[0]);
printf("Number of elements: %d", n);
```

A) Prints the sum of the elements in the nums array
B) Prints the average of the elements in the nums array
C) Prints the number of elements in the nums array
D) Initializes the n variable with the value 5

17. What is the output of the following C code snippet? [ ]

```
char str[] = "Hello";
printf("%c", str[3]);
```

A) H B) e C) l D) l

18. How do you declare a 2D array in C with 3 rows and 4 columns? [ ]
A) int array[3][4]; B) int array(3, 4); C) int array[][] = {3, 4}; D) int array[4][3];

19. What is the index of the element in the second row and third column of a 2D array in C? [ ]
A) (1, 2) B) [2][3] C) (2, 3) D) [3][2]

20. How do you access the element at the intersection of the first row and second column in a 2D array named matrix in C? [ ]
A) matrix(1, 2) B) matrix[1, 2] C) matrix[1][2] D) matrix.1.2

21. What is the correct way to initialize a 2D array in C with the values 1, 2, 3 in the first row and 4, 5, 6 in the second row? [ ]
A) int array[2][] = {{1, 2, 3}, {4, 5, 6}}; B) int array[2][3] = {1, 2, 3, 4, 5, 6};
C) int array[][3] = {{1, 2, 3}, {4, 5, 6}}; D) int array[2][3] = {{1, 2, 3}, {4, 5, 6}};

22. What is the size of a 2D array declared as int numbers[3][5] in C? [ ]
A) 8 bytes B) 12 bytes C) 15 bytes D) 20 bytes

23. How do you iterate through all the elements of a 2D array in C using nested loops? [ ]
A) for (int i = 0; i < rows; i++) { for (int j = 0; j < columns; j++) { // code }}
B) for (int i = 0; i < rows; i++) { // code } for (int j = 0; j < columns; j++) { // code }
C) for (int i = 0; i < rows, j < columns; i++, j++) { // code }
D) for (int i = 0; i < rows; j < columns; i++) { // code }

24. What is the output of the following C code snippet? [ ]

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

A) 2 B) 3 C) 1 D) 4

25. Which of the following statements is true regarding 2D arrays in C? [ ]
A) The number of columns must be specified during declaration.
B) 2D arrays can only have a maximum of two rows.
C) The size of a 2D array is the product of its rows and columns.
D) The elements of a 2D array must be of the same data type.

26. In C, how are strings typically represented? [ ]
A) As an array of characters B) Using the string data type

C) As a linked list D) With the str keyword

27. Which of the following is the correct way to declare a string in C? [ ]
A) string myString = "Hello"; B) char myString[] = "Hello";
C) char myString = "Hello"; D) str myString = "Hello";

28. What is the purpose of the null character ('\0') in C strings? [ ]
A) Marks the end of the string B) Represents an empty character
C) Separates characters in the string D) Converts the string to uppercase

29. How do you concatenate two strings in C? [ ]
A) Using the + operator B) Using the concat function
C) Using the strcat function D) By assigning one string to another

30. Which function is used to compare two strings in C? [ ]
A) strcompare B) strcmp C) stringcompare D) comparestr

31. What is the output of the following C code snippet? [ ]
```
char str1[] = "Hello";
char str2[] = "World";
printf("%s", str1 + str2);
```
A) HelloWorld B) WorldHello C) Compile error D) Hello+World

32. Which library should be included for string manipulation functions in C? [ ]
A) stdliB)h B) string.h C) math.h D) stdio.h

33. What is the purpose of the strlen function in C? [ ]
A) Returns the length of a string B) Compares two strings
C) Concatenates two strings D) Converts a string to uppercase

34. Which function is used to copy one string to another in C? [ ]
A) strcopy B) copystr C) strcpy D) stringcopy

35. What does the gets function do in C? [ ]
A) Gets the length of a string B) Gets a string from the user
C) Gets the substring of a string D) Gets the first character of a string

36. What is the purpose of the strcmp function in C? [ ]
A) Compares two strings B) Concatenates two strings
C) Copies one string to another D) Returns the length of a string

37. What does the strchr function in C do? [ ]
A) Searches for a character in a string B) Compares two strings
C) Returns the length of a string D) Concatenates two strings

38. Which function is used to find the first occurrence of a substring in a string in C? [ ]
A) findstr B) strstr C) substring D) strsub

39. Which function is used to convert a string to an integer in C? [ ]
A) strint B) atoi C) str2int D) string2int

40. What is the output of the following C code snippet? [ ]
```
char str[] = "Programming";
int len = strlen(str);
printf("%d", len);
```
A) 12 B) 11 C) 13 D) 10

UNIT – IV

1. What is a pointer in C? [ ]
   A) A special type of variable B) A reserved keyword
   C) A constant value D) A data structure
2. What does the address of operator '&' do in C? [ ]
   A) Declares a variable B) Retrieves the value stored at a memory address
   C) Assigns a value to a variable D) Returns the address of a variable
3. How do you declare a pointer variable in C? [ ]
   A) Declares a pointer variable B) Retrieves the memory address of a variable
   C) Assigns a value to a pointer D) Retrieves the value stored at a memory address
4. What is the reference operator '*' used for with pointer in C? [ ]
   A) Declares a pointer variable B) Retrieves the memory address of a variable
   C) Assigns a value to a pointer D) Retrieves the value stored at a memory address
5. Which is the purpose of dynamic memory allocation in C? [ ]
   A) To automatically allocate memory for variables B) To manually allocate and deallocate memory during program execution
   C) To optimize the use of memory by the compiler D) To prevent memory leaks
6. How do you allocate memory for a single variable using dynamic memory allocation in C? [ ]
   A) malloc(sizeof(variable_type)); B) allocate(sizeof_variable_type);
   C) alloc(variable_type); D) memory_alloc(variable_type);
7. What does the free function do in C? [ ]
   A) Allocates memory B) Releases memory
   C) Frees up CPU resources D) Declares a pointer
8. What is a null pointer in C? [ ]
   A) A pointer with a value of zero B) A pointer with a value of one
   C) A pointer with a value of one D) A pointer with a negative value
9. How do you check if a pointer is a null pointer in C? [ ]
   A) if(ptr==null) B) if(ptr==0) C) if(ptr===null) D)if(ptr===0)
10. What is the purpose of the sizeof operator in C when working with pointers? [ ]
    A) Determines the size of a variable B) Determines the size of a pointer
    C) Returns the address of a variable D) Allocates memory for a variable
11. What does the address of operator '&' do in C? [ ]
    A) Retrieves the value stores at a memory address B) Declares a pointer variable
    C) Returns the address of a variable D) Allocates memory for a variable
12. What is the syntax for the dereference operator in C? [ ]
    A) * B) & C) -> D) %
13. In C, what is the purpose of the dereference operator '*' when used with a pointer ? [ ]
    A) Declares a pointer variable B) Retrieves the memory address of a variable
    C) Assigns a value to a pointer D) Retrieves the value stored at a memory address
14. What is the result of the expression *ptr if ptr is a pointer variable pointing to an integer? [ ]
    A) The memory address of the integer
    B) The value stored at the memory address pointed to by ptr
    C) The square of the value stored at the memory address pointed to by ptr
    D) The double of the value stored at the memory address pointed to by ptr
15. What is the purpose of the address-of operator '&' when used wit a variable in C? [ ]
    A) Retrieves the memory address of the variable

B) Declares a pointer variable
C) Assigns a value to a pointer
D) Retrieves the value stores at a memory address

16. What is the type of the expression & variable if variable is an integer? [ ]
A) Integer B) Pointer to integer C) Float D) Pointer to float

17. In C, what is the effect of the expression *&variable if variable is an integer? [ ]
A) It returns the value of variable B) It returns the memory address of variable
C) It returns the address of the pointer to variable D) It returns the double of variable

18. What is the result of the expression &*ptr if ptr is a pointer variable? [ ]
A) It returns the memory address of the pointer variable
B) It returns the value stored at the memory address pointed to by ptr
C) It returns the memory address pointed to by ptr
D) It returns the double of the value stored at the memory address pointed to by ptr

19. C, what is the type of the expression *(&variable) if variable is a [ ]
A) Integer B) Float C) Pointer to float D) Pointer to integer

20. What is the result of the expression &*ptr if ptr is a pointer variable? [ ]
A) It returns the memory address of the pointer variable
B) It returns the value stored at the memory address pointed to by ptr
C) It returns the memory address pointed to by ptr
D) It returns the double of the value stored at the memory address pointed to by ptr

21. What is a pointer in C? [ ]
A) A reserved keyword B) A data type
C) A special type of variable that stores the memory address of another variable
D) A function

22. How is a pointer variable declared in C? [ ]
A) int *ptr; B) pointer int; C) int ptr; D) *int ptr;

23. What does address arithmetic involve in C? [ ]
A) Performing calculations on the value stored at memory addresses
B) Manipulating the actual address stored in pointer variables
C) Working with the size of variables in memory
D) Performing arithmetic operations on memory addresses

24. Which keyword is used to define a structure in C? [ ]
A) define B) struct C) typedef D) class

25. What is a union in C? [ ]
A) A collection of functions B) A data type that stores variables of different data types in the same memory location
C) A loop that iterates until a condition is met D) A type of conditional statement

26. How is memory allocated for members of a structure in C? [ ]
A) Continues memory allocation B) Non-contiguous memory allocation
C) Dynamic memory allocation D) Random memory allocation

27. What will be the size of the following structure? [ ]
A) 5 B) 11 C) 41 D) 44

28. What is the result of 16>>2? [ ]
A) 4 B) 8 C) 2 D) 5

29. The conditional operators are sometimes called operators? [ ]
A) Binary B) Ternay C) Unary D) None

30. _____is used to convert one data type to another data type. [ ]
A) Type Conversion B) Type Casting C) Widening D) Narrowing

31. _____statements involves a decision making condition. [ ]
A) Decision B) Control C) Both a & b D) Loop control

32. _____statement execute a set of command lines when the logical condition is true [ ]
A) if B) while C) do-while D) switch
33. _____statement allows the programmers to terminate the loop. [ ]
A) break B) continue C) goto D) switch
34. _____statements passes control anywhere in the program [ ]
A) break B) continue C) goto D) switch
35. _____statement is a multi_way branch statement. [ ]
A) break B) continue C) goto D) switch
36. ____ statement contains inner switch as a part of outer switch. [ ]
A) switch B) nested switch C) Both a,b D) None
37. The default statement executed when [ ]
A) all the case statements are false B) case is true
C) one case is false D) None of the above
38. Each case statement in switch() is separated by [ ]
A) break B) continue C) exit D) goto
39. ____is defined as a block of statement [ ]
A) Loop B) control C) Function D) All
40. In while loop, statements are executed till the condition is __ [ ]
A) False B) True C) Equal D) None

UNIT – V

1. What is a function in C? [ ]
   A) A keyword B) A variable C) A block of code that performs a specific task
   D) An operator
2. In C, which keyword is used to define a function? [ ]
   A) define B) function C) def D) void
3. What is the purpose of the "main" function in a C program? [ ]
   A) To define other functions B) To print output to the console C) To initialize variables
   D) To specify the starting point of the program
4. In C, what is a function prototype used for? [ ]
   A) To declare a variable B) To declare the return type of a function
   C) To define a function D) To specify the order of function execution
5. How is a function called in C? [ ]
   A) Using the run keyword B) Using the call keyword
   C) By writing the function name followed by parentheses
   D) By using the execute keyword
6. What is a parameter in a C function? [ ]
   A) The return value of the function B) A variable used inside a function
   C) The name of the function D) The input to a function
7. In C, how is a function's return value specified? [ ]
   A) Using the return keyword followed by the value
   B) By writing the value after the function name
   C) Using the output keyword D) By enclosing the value in square brackets
8. What is the default return type of a function in C if not specified [ ]
   A) int B) void C) char D) float
9. What is the purpose of the "return 0;" statement in the "main" function of a C program?
   [ ]
   A) To terminate the program successfully B) To indicate an error C) To print the value 0
   D) To restart the program
10. What is the significance of the static keyword in a C function? [ ]
    A) specific the function's return type B) It limits the function's scope to the current file
    C) It makes the function execute faster D) It allows the function to be called from other files
11. What is the purpose of a function declaration in C? [ ]
    A) define the function B) to declare the return type of the function
    C) to specify the function's implementation D) to indicate the order of execution

12. What is the syntax for a function declaration in C? [ ]
    A) int function_name(); B) function_name(); C) function_name(int); D) function_name
13. In C, can a function be declared without specifying its return type? [ ]
    A) yes B) no
    C) only if function have parameters D) only if function is defined later in the code

14. What is the purpose of a function definition in C? [ ]
    A)to declare a function B) to specify the function's return type
    C) to provide the details to how the function works D) to indicate the order of execution
15. In C, can a function be defined without a declaration [ ]
    A) yes B) no
    C) only if the function has parameters D) Only if the function is declared later in code
16. What does the term "function prototype" refer to in C? [ ]

A) the first line of a function definition B) the return type of a function
C) a declaration of the function that includes its signature
D) the last line of a function definition

17. What is the purpose of a parameter list in a function declaration or definition? [ ]
A) to specify the return type of the function B) to provide a name for the function
C) to list the values the function will return D) to declare variables that the function will use

18. In C, what is the function signature? [ ]
A) The return type of the function B) The name of the function
C) The combination of the function name and its parameter list
D) The list line of the function definition

19. What is the keyword used in C to indicate that a function does not return any value? [ ]
A) null B) empty C) void D) none

20. In C, where is the declaration typically placed? [ ]
A) At the end of the program B) In a separate file
C) Before the main function or nay function that calls it D) Anywhere in the program

21. How is a function called in C? [ ]
A) Using the run keyword B) By writing the function name followed by parentheses
C) By using the call keyword D) By using the execute keyword

22. What does the term "function signature" refer to in C? [ ]
A) The return type of the function B) The name of the function
C) The combination of the function name and its parameter list
D) The last line of the function definition

23. In C, what is an argument in the context of a function call? [ ]
A) The return value of the function B) The name of the function
C) The input provided to the function when it is called D) The type oft the function

24. How are arguments passed to a function in C? [ ]
A) By reference B) By value C) By name D) By pointer

25. In C, what does the "return" statement do in a function? [ ]
A) Terminates the function prematurely B) Sends a message to the user
C) Returns a value to the calling function D) Skips the next line of code

26. What is the purpose of a return in a function declaration? [ ]
A) To declare the type of argument the function accepts
B) To specify the order of execution
C) To indicate whether the function is a call or definition
D) To declare the type of value the function returns

27. In C, can a function have multiple return statements? [ ]
A) Yes B) No
C) Only if the function has multiple parameters D) Only if the function is declared as void

28. What is the purpose of the "void" keyword in a function declaration? [ ]
A) To indicate that the function returns no value
B) To specify that the function accepts no arguments
C) To declare a variable inside the function
D) To terminate the function

29. How are multiple arguments separated in a function call in C? [ ]
A) Using commas B) Using semicolons C) Using colons D) Using spaces

30. What is the result if a function is called without providing the correct number of arguments? [ ]
A) The program terminates B) The function automatically assigns default values
C) It depends on the compiler D) It results in a compilation error

31. How are parameters passed to functions in C by default? [ ]
A) By reference B) By value C) By name D) By pointer
32. What is the purpose of using pointers in function parameters in C? [ ]
A) To declare the parameter type B) To pass the parameter by reference
C) To limit the scope of the parameter D) To specify the function definition
33. In C, what does the dereference operator(*) do when applied to a pointer parameter in a function? [ ]
A) Declares a new variable
B) Retrieves the value stored at the memory address pointed to by the pointer
C) Increases the memory address
D) Changes the data type of the pointer
34. How does using pointers as parameters affect the original variables passed to a function? [ ]
A) The original variables remain unchanged B) The original variables become global
C) The original variables are automatically increased D) The original variables are modified
35. What does the syntax for declaring a pointer parameter in a C function? [ ]
a. function_name(int *ptr); B) int function_name(*ptr);
C) int function_name(ptr*); D) int function_name(&ptr);
36. In C, how is a value assigned to the memory location pointed to by a pointer inside a function? [ ]
A) Using the assignment operator(=) B) Using the ampersand operator(&)
C) Using the asterisk operator(*) D) Using the plus operator(+)
37. What is the significance of the ampersand (&) operator when used with a variable in a function [ ]
A) It declares a new variable B) It retrieves the memory address of the variable
C) It increments the variable D) It decreases the variable
38. In C, what is the advantage of passing parameters by reference using pointers? [ ]
A) It reduces the memory usage B) It simplifies the function definition
C) It allows the function to modify the original variables D) It improves the speed of the program
39. What happens if a NULL pointer is dereferenced inside a function? [ ]
A) To the program crashes B) It results in a compilation error
C) It returns the value 0 D) It depends on the compiler
40. In C, can a function have both regular (by value) parameters and pointer parameters? [ ]
A) Yes B) No
C) Only if the function is declared as void D) Only if the function has a return type of char