



Maratha Vidya Prasarak Samaj's

Rajarshi Shahu Maharaj Polytechnic, Nashik

Udoji Maratha Boarding Campus, Near Pumping Station, Gangapur Road, Nashik-13.

Affiliated to MSBTE Mumbai, Approved by AICTE New Delhi, DTE Mumbai & Govt. of Maharashtra, Mumbai.

Subject :-
Programming in 'C'
(22226)



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SYLLABUS

Chapter No.	Name of chapter	Marks With Option
1	Program logic development	20
2	Basics of c programming	22
3	Control structures	20
4	Array and structures	14
5	Functions	15
6	Pointers	15
Total Marks :-		106



BOARD THEORY PAPER PATTERN FOR PCI (22226)

Q.1		Attempt any FIVE	5*2=10
	a)	Array and structures	
	b)	Program logic development	
	c)	Basics of c programming	
	d)	Array and structures	
	e)	Basics of c programming	
	f)	Pointers	
	g)	Program logic development	
Q.2		Attempt any THREE	3*4=12
	a)	Program logic development	
	b)	Array and structures	
	c)	Pointers	
	d)	Control structures	
Q.3		Attempt any THREE	3*4=12
	a)	Basics of c programming	
	b)	Functions	
	c)	Basics of c programming	
	d)	Functions	
Q.4		Attempt any THREE	3*4=12
	a)	Program logic development	
	b)	Control structures	
	c)	Control structures	
	d)	Array and structures	
Q.5		Attempt any TWO	2*6=12



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	a)	Control structures
	b)	Array and structures
	c)	Pointers
Q.6		Attempt any TWO 2*6=12
	a)	Array and structures
	b)	Control structures
	c)	Control structures

CLASS TEST - I

PAPER PATTERN

COURSE: - Programming in 'C' (22226)

PROGRAMME: - Information Technology

Syllabus: -

Unit No.	Name of the Unit	Course Outcome (CO)
1	Program logic development	CO-226-1
2	Basics of c programming	CO-226-2
3	Control structures	CO-226-3

Q.1	Attempt any FOUR	4*2=8Marks	Course Outcome (CO)
a)	Program logic development		CO-226.1
b)	Program logic development		CO-226.1
c)	Basics of c programming		CO-226.2
d)	Basics of c programming		CO-226.2
e)	Control structures		CO-226.3
f)	Control structures		CO-226.3
Q.2	Attempt any TWO	2*6=12Marks	
a)	Program logic development		CO-226.1
b)	Basics of c programming		CO-226.2
c)	Control structures		CO-226.3

CLASS TEST - II

PAPER PATTERN

COURSE: - Programming in 'C' (22226)

PROGRAMME: - Information Technology

Syllabus: -

Unit No.	Name of the Unit	Course Outcome (CO)
3	Array and structures	CO-226-4
4	Functions	CO-226-5
5	Pointers	CO-226-6

Q.1	Attempt any FOUR	4*2=8Marks	Course Outcome (CO)
a)	Array and structures		(CO-226.4)
b)	Array and structures		(CO-226.4)
c)	Functions		(CO-226.5)
d)	Functions		(CO-226.5)
e)	Pointers		(CO-226.6)
f)	Pointers		(CO-226.6)
Q.2	Attempt any TWO	2*6=12Marks	
a)	Array and structures		(CO-226.4)
b)	Functions		(CO-226.5)
c)	Pointers		(CO-226.6)

COURSE OUTCOME (CO)

COURSE: - Programming in 'C' (22226)

PROGRAMME: - Information Technology

Syllabus: -

CO.NO	Course Outcome
CO-226.01	Develop program and algorithm to solve problems logically.
CO-226.02	Write down simple c program for arithmetic expressions.
CO-226.03	Develop 'c' program using control structures.
CO-226.04	Develop 'c' program using arrays and structures.
CO-226.05	Develop 'c' program using modular programming approach.
CO-226.06	Develop 'c' program using pointers.



1 .PROGRAM LOGIC DEVELOPMENT

Position in Question Paper

Total Marks=08

Q.1. b) 2-Marks.

Q.1. g) 2-Marks.

Q.2. a) 4-Marks.

Q.3. b) 4-Marks.

Q.4. a) 4-Marks.


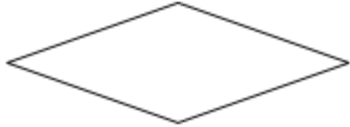
Descriptive Question

1. Define algorithm.
2. Explain notations in algorithm.
3. Write down an algorithm to find out the prime number.
4. Define flowchart.
5. Give the symbols used in flowchart with its meaning.
6. Write down an algorithm to check whether given number is even or odd.
7. Write down an algorithm to find largest number among three numbers.
8. Write down an algorithm to calculate area of triangle.
9. Write down an algorithm to calculate area of circle.

MCQ Question

(Total number of Question=Marks*3=08*3=24)

Note: Correct answer is marked with **bold**.

- The word _____ comes from the name of a Persian mathematician Abu Ja'far Mohammed ibn-i Musa al Khowarizmi.
a) Flowchart
b) Flow
c) **Algorithm**
d) Syntax
- Which of the following is incorrect?
Algorithms can be represented:
a) as pseudo codes
b) **as syntax**
c) as programs
d) as flowcharts
- When an algorithm is written in the form of a programming language, it becomes a _____.
a) Flowchart
b) **Program**
c) Pseudo code
d) Syntax
- Any algorithm is a program.
a) True
b) **False**
- The symbol denotes _____.

a) I/O
b) Flow
c) **Terminal**
d) Decision
- The process of drawing a flowchart for an algorithm is called _____.
a) Performance
b) Evaluation
c) Algorithmic Representation
d) **Flowcharting**
- Actual instructions in flowcharting are represented in _____.
a) Circles
b) **Boxes**
c) Arrows
d) Lines
- The following box denotes?

a) **Decision**
b) Initiation
c) Initialization
d) I/O
- A box that can represent two different conditions.
a) Rectangle
b) **Diamond**
c) Circle
d) Parallelogram

10. A detailed flowchart is called _____

- a) Stack
- b) Macro
- c) **Micro**
- d) Union

11. following is not an advantage of a flowchart?

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

12. A _____ is diagram that depicts the flow of a program.

- a) Algorithm
- b) Hash Table
- c) Graph
- d) **Flowchart**

13. Terminals are represented by diagonals in a flowchart.

- a) True
- b) **False**

14. The operation represented by parallelograms.

- a) **Input/Output**
- b) Assignment
- c) Comparison
- d) Conditions

15. Which of the following is not a flowchart structure?

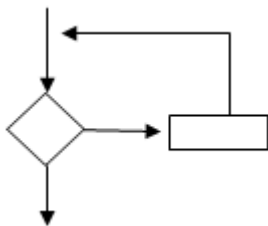
- a) **Process**
- b) Sequence
- c) Repetition
- d) Case

16. The following symbol denotes:



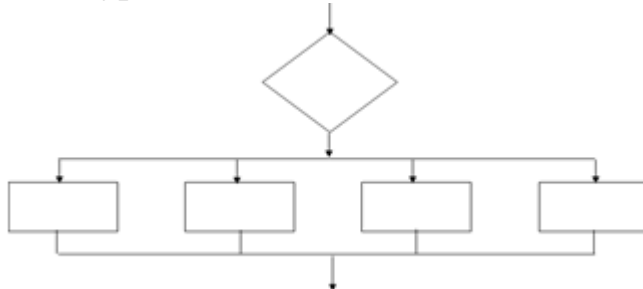
- a) **Module**
- b) Terminal
- c) Process
- d) i/o operation

17. What type of structure is this?



- a) sequence
- b) case
- c) **repetition**
- d) process

18. What type of a structure is this?



- a) sequence
c) repetition
- b) case
d) process
19. A _____ is a connector showing the relationship between the representative shapes.
- a) line
c) Process
- b) arrow
d) box
20. The action performed by a _____ structure must eventually cause the loop to terminate.
- a) sequence
c) **repetition**
- b) case
d) process
- Who invented C Language.?
- a) Charles Babbage
c) **Dennis Ritchie**
- b) Grahambel
d) Steve Jobs
22. C is _____ type of programming language?
- a) Object Oriented
c) Bit level language
- b) **Procedural**
d) Functional
23. A C program is a combination of?
- a) Statements
c) Variables
- b) Functions
d) **All of the above**
24. Which of the following is not a valid variable name declaration?
- a) int _a3;
c) **int 3_a;**
- b) int a_3;
d) int _3a
25. The format identifier '%i' is also used for _____ data type.
- a) Char
c) Float
- b) **int**
d) double



2. BASICS OF 'C' PROGRAMMING

Position in Question Paper

Total Marks=10

Q.1. e) 2-Marks.

Q.3.a) 4-Marks.

Q.3.c) 4-Marks.

Q.4.a) 4-Marks.

Descriptive Question

1. Explain history of 'C' programming language.
2. Explain structure of 'C' program in detail.
3. Explain token in detail.
4. Describe identifier in detail.
5. Give the arithmetic operations in detail.
6. Explain formatted input and output.
7. Why C is called as Function oriented language ?
8. Give out the syntax for scanf() and printf() with an example
9. Give out the structure of C program
10. Define constant and its types
11. Define character set
12. Define Identifiers with an example
13. Define variables with an example
14. Mention the rules for constructing character constants.
15. List out the various logical operators.
16. What is << operator and give out an example for it.
17. List out any 4 relational operator.
18. Mention any 5 Library functions.
19. Write a short note on Arithmetic operators with examples.
20. Write a short note on relational operators with examples.
21. Write a short note on Bitwise operators with example.
22. Write a short note on Logical operators with examples.
23. Write a program to check a given number is even or odd.

MCQ Question

(Total number of Question=Marks*3=10*3=30)

Note: Correct answer is marked with **bold**.

- Which of the following is not a data type?
 - Symbolic Data**
 - Alphanumeric Data
 - Numeric Data
 - Alphabetic Data
- *@Ac# is a type of _____ data.
 - Symbolic
 - Alphanumeric**
 - Alphabetic
 - Numeric
- following is not a valid representation in bits?
 - 8-bit
 - 24-bit**
 - 32-bit
 - 64-bit
- the entities whose values can be changed called?
 - Constants
 - Variables**
 - Modules
 - Tokens
- following is not a basic data type in C language?
 - float
 - int
 - real**
 - char
- BOOLEAN is a type of data type which basically gives a tautology or fallacy.
 - True
 - False**
- What does FORTRAN stands for?
 - Formula Transfer
 - Formula Transformation
 - Formula Translation**
 - Format Transformation
- The program written by the programmer in high level language is called _____
 - Object Program
 - Source Program**
 - Assembled Program
 - Compiled Program
- A standardized language used for commercial applications.
 - C
 - Java
 - COBOL**
 - FORTRAN
- _____ define how the locations can be used.
 - Data types
 - Attributes**
 - Links
 - Data Objects
- Among the following is the odd one out?
 - printf
 - fprintf
 - putchar
 - scanf**

12. For a typical program, the input is taken using _____
- a) scanf
 - b) Files
 - c) Command-line
 - d) **All of the mentioned**
13. Default return-type of getchar()?
- a) char
 - b) **int**
 - c) char *
 - d) reading character doesn't require a return-type
14. value of EOF?
- a) **-1**
 - b) 0
 - c) 1
 - d) 10
15. Use of getchar()?
- a) The next input character each time it is called
 - b) EOF when it encounters end of file
 - c) **The next input character each time it is called EOF when it encounters end of file**
 - d) None of the mentioned
16. The following statement is true?
- a) The symbolic constant EOF is defined in <stdio.h>
 - b) The value is -1
 - c) **The symbolic constant EOF is defined in <stdio.h> & value is -1**
 - d) Only value is -1
17. The return value of putchar()?
- a) The character written
 - b) EOF if an error occurs
 - c) Nothing
 - d) **Both character written & EOF if an error occurs**
18. Putchar (c) function/macro always outputs character c to the _____
- a) screen
 - b) **standard output**
 - c) depends on the compiler
 - d) depends on the standard
19. Precedence of arithmetic operators (from highest to lowest)?
- a) **%, *, /, +, -**
 - b) %, +, /, *, -
 - c) +, -, %, *, /
 - d) %, +, -, *, /
20. Which of the following data type will throw an error on modulus operation(%)?
- a) char
 - b) short
 - c) int
 - d) **float**

21. 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
22. Which is a valid C expression?
a) int my_num = 100,000;
b) int my_num = 100000;
c) int my num = 1000;
d) int \$my_num = 10000;
23. Which among the following is the odd one out?
a) printf
b) fprintf
c) putchar
d) **scanf**
24. For a typical program, the input is taken using _____
a) **scanf**
b) Files
c) Command-line
d) All of the mentioned
25. What is the return value of putchar()?
a) The character written
b) EOF if an error occurs
c) Nothing
d) **Both a & b**
26. putchar(c) function always outputs character c to the _____
a) screen
b) **standard output**
c) depends on the compiler
d) depends on the standard
27. What will be the output of the following C code?
#include <stdio.h>
int main()
{
int i = 10, j = 3, k = 3;
printf("%d %d ", i, j, k);
}
- a) Compile time error
b) 10 3 3
c) **10 3**
d) 10 3 some garbage value
28. What is the purpose of sprintf?
a) It prints the data into stdout
b) **It writes the formatted data into a string**
c) It writes the formatted data into a file
d) None of the mentioned
29. Which Committee standardizes C Programming Language ?
a) **ANSI**
b) W3C
c) ISO
d) TRAI
30. What is required in each C program?
a) **The program must have at least one function.**
b) The program does not require any function.
c) Input data
d) Output data

3. CONTROL STRUCTURES

Position in Question Paper

Total Marks=12

Q.2. a) 4-Marks.

Q.4. d) 4-Marks.

Q.4. c) 4-Marks.

Q.5. a) 6-Marks.

Q.6. b) 6-Marks.

Q.6. c) 6-Marks.

Descriptive Question

1. Define Conditional control structure and its types
2. What is repetitive control structure?
3. What is selective control structure?
4. What is nested if? Give out an example for it
5. What is if-else? Give out its syntax
6. Define else-if Ladder? Give out an example for it
7. Give out the syntax of for loop with an example
8. Distinguish between do-while and while
9. What is the use of break statement?
10. What is continue statement and why we use it?
11. What is the use of header file and why we include it in the program?
12. List down the steps involved in execution of c program.
13. Discuss in detail about control structures
14. Write a detail note on following with an example
 - a. nested if
 - b. for
 - c. while
15. Write a program to generate Floyd's triangle
16. Write a program to check a given number is prime or not
17. What is nested control structure ? give out an example program for it.

MCQ Question

(Total number of Question=Marks*3=12*3=36)

Note: Correct answer is marked with **bold**.

1. Which of the following is an invalid if-else statement?

- | | |
|------------------------------------|----------------------------------|
| a) <code>if (if (a == 1)){}</code> | b) <code>if (func1 (a)){}</code> |
| c) <code>if (a){}</code> | d) <code>if ((char) a){}</code> |

2. Find output?

```

1.      #include <stdio.h>
2.      int main()
3.      {
4.          int a = 1, b = 1;
5.          switch (a)
6.          {
7.              case a*b:
8.                  printf("yes ");
9.              case a-b:
10.                 printf("no\n");
11.                 break;
12.            }
13.        }
  
```

- | | |
|------------------------------|-----------|
| a) Yes | b) no |
| c) Compile time error | d) yes no |

3. Data type can accept the switch statement?

- | | |
|---------|--------------------------------|
| a) int | b) char |
| c) long | d) all of the mentioned |

4. Are logical operator sequence points?

- | | |
|----------------------------|-----------------------------------|
| a) True | b) False |
| c) Depends on the compiler | d) Depends on the standard |

5. Do logical operators in the C language are evaluated with the short circuit?

- | | |
|----------------------------|----------------------------|
| a) True | b) False |
| c) Depends on the compiler | d) Depends on the standard |

6. the result of logical or relational expression in C?

- | |
|---|
| a) True or False |
| b) 0 or 1 |
| c) 0 if an expression is false and any positive number if an expression is true |
| d) None of the mentioned |

7. Among the following is NOT a logical or relational operator?
- a) != b) ==
c) || d) =
8. Relational operators cannot be used on _____
- a) **structure** b) long
c) strings d) float
9. When double is converted to float, then the value is?
- a) Truncated b) Rounded
c) Depends on the compiler d) Depends on the standard
10. the following operators are used for logical execution?
- a) || b) &&
c) %% d) **&& and ||**
11. When we use &&, the second command is executed only when first succeeds.
- a) **True** b) False
12. When we use ||, both the commands are executed.
- a) True b) **False**
13. The syntax for using && is _____
- a) **cmd1 && cmd2** b) cmd1 cmd2 &&
c) cmd1 & cmd2& d) cmd1
14. To perform decision depending on the fulfillment of certain criteria, ____ is used.
- a) if b) else
c) for d) **if and else**
15. Every if is closed with a corresponding _____
- a) else b) **fi**
c) if d) else if
16. To check more than two conditions, ____ is used with if-else statements.
- a) while b) for
c) elif d) for
17. The name of the script is stored in which special parameter?
- a) \$1 b) **\$0**
c) \$# d) \$*
18. To know the exit status of a command, we can use _____
- a) \$\$ b) \$*
c) \$? d) \$-
19. What is the output of relational operators?
- a) Integer b) **Boolean**
c) Characters d) Double
20. Which of these operators can skip evaluating right hand operand?
- a) ! b) |
c) & d) **&&**

21. How many times will Hello be printed in the program given below?

```
#include <stdio.h>
int main()
{
    int i = 1024;
    for (; i; i >>= 1)
        printf("Hello");
    return 0;
}
```

- a) 10
- b) 11**
- c) Infinite
- d) The program will show compile-time error

22. The continue statment cannot be used with

- a) for
- b) while
- c) do while
- d) switch**

23. Which keyword can be used for coming out of recursion?

- a) Return**
- b) break
- c) Exit
- d) both A and B

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

- a) True
- b) False**

25. Which loop is guaranteed to execute at least one time.

- a) for
- b) while
- c) do while**
- d) None of the above

26. What is the output of this C code?

```
int main()
{
    int a = 0, i = 0, b;
    for (i = 0; i < 5; i++)
    {
        a++;
        continue;
    }
}
```

a=?

- a) 2
- b) 3
- c) 4
- d) 5**

27. What is the other name for C Language?: Question Mark Colon Operator?

- a) Comparison Operator
- b) If-Else Operator
- c) Binary Operator
- d) Ternary Operator

28. Choose syntax for C Ternary Operator from the list.

- a) **condition? expression1: expression2**
- b) condition : expression1 ? expression2
- c) condition ? expression1 < expression2
- d) condition < expression1 ? expression2

29. What is the output of this C code?

```
void main()
{
    int k = 0;
    for (k)
        printf("Hello");
}
```

- a) **Compile time error**
- b) Hello
- c) Varies
- d) Nothing

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

```
#include <stdio.h>
int main()
{
    float f = 1;
    switch (f)
    {
        case 1.0:
            printf("yes\n");
            break;
        default:
            printf("default\n");
    }
}
```

- a) Yes
- b) Yes default
- c) Undefined behaviour
- d) **Compile time error**

31. For loop in a C program, if the condition is missing?

- a) it is assumed to be present and taken to be false
- b) **it is assumed to be present and taken to the true**
- c) it result in a syntax error
- d) execution will be terminated abruptly

32. 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

33. How many x are printed?

```
for(i=0,j=10;i < j;i++,j--)  
    printf("x");
```

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

34. The keyword 'break' cannot be simply used within:

- a) do-while
- b) **if-else**
- c) for
- d) while

35. Find the output of the given C program.

```
#include<stdio.h>  
int main()  
{  
    float a = 1.3;  
    if(1.3f==a) printf("true");  
    else printf("false");  
    return 0;  
}
```

- a) false
- b) None of these
- c) **true**
- d) error

36. Choose a right C Statement.

- a) Loops or Repetition block executes a group of statements repeatedly.
- b) Loop is usually executed as long as a condition is met.
- c) Loops usually take advantage of Loop Counter
- d) **All the above.**

4. ARRAY AND STRUCTURES

Position in Question Paper

Total Marks=14

Q.1. a) 2-Marks.

Q.1. b) 2-Marks.

Q.4. d) 4-Marks.

Q.5. b) 6-Marks.

Q.6. a) 6-Marks.

Descriptive Question

1. Write a program to search a given element in an array
2. Write a detailed note on array and its operations
3. Write a program to sort the given numbers in ascending order
4. Write a detailed note on 2D array and implement it in matrix addition program
5. Write a detailed note on string and its functions
6. Mention the memory representation of an array
7. What is a char array? How will you declare it?
8. What is 2D array?
9. Mention the memory mapping of 2D Array
10. What is recursion? Mention its benefits
11. What is c preprocessor?
12. Define array? Give out an example program for array?
13. Write a program to find the sum and average of n given numbers?
14. Write a program to check a given string is palindrome or not?
15. Write a short note on strings with example
16. Write a short note on string functions with example
17. How to pass an entire array to a function .explain it with a example program
18. Write a program to print the following output:
0 1 1 2 3 5 8
19. Write a program to calculate sum of the digits of a given number
20. How will you calculate the length and reverse of a string?
21. What is 2D array? Give out an example program for it

MCQ Question

(Total number of Question=Marks*3=14*3=42)

Note: Correct answer is marked with **bold**.

1. What is an Array in C language.?
 - a) A group of elements of the 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 are the Types of Arrays.?
 - a) int, long, float, double
 - b) struct, enum
 - c) char
 - d) All the above**
3. An array Index starts with.?
 - a) -1
 - b) 0**
 - c) 1
 - d) 2
4. An entire array is always passed by ____ to a called function.
 - a) Call by value
 - b) Call by reference**
 - c) Address relocation
 - d) Address restructure
5. What is the maximum number of dimensions an array in C may have?
 - a) Two
 - b) eight
 - c) sixteen
 - d) Theoretically no limit.**
6. Array can be considered as set of elements stored in consecutive memory . Locations but having _____.
 - a) Same data type**
 - b) Different data type
 - c) Same scope
 - d) None of these
7. Array is an example of _____ type memory allocation.
 - a) Compile time**
 - b) Run time
 - c) Both A and B
 - d) None of the above
8. 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
9. Which of the following function is more appropriate for reading in a multi-word string?
 - a) scanf()
 - b) printf()
 - c) gets()**
 - d) puts()
10. Length of the string "letsfindcourse" is
 - a) 13
 - b) 14**
 - c) 15
 - d) 12

11. Let x be an array. Which of the following operations is illegal?

- i) ++x.
- ii) x+1.
- iii) x++.
- iv) x*2.

- a) I and II
- c) III and IV

- b) I, III and IV
- d) II and III**

12. String is an array of characters.

- a) True**

- b) False

13. If the two strings are identically equal, then strcmp() function returns

- a) -1
- c) 0**

- b) 1
- d) None

14. What will happen if in a C program you assign a value to an array element whose subscript exceeds the size of array?

- a) The element will be set to 0.
- b) The compiler would report an error.
- c) The program may crash**
- d) None of the above

15. An array elements are always stored in _____ memory locations.

- a) Sequential**
- c) Sequential and Random

- b) Random
- d) None of the above

16. What is the output of this program?

```
void main()
{
    int a[8] = {1,2,3,4,5};
    printf("%d", a[5]);
}
```

- a) 5
- c) 0**

- b) 6
- d) Garbage Value

17. What is the output of this program?

```
#include <stdio.h>
int main()
{
    int arr[5] = {1,2,3,4,5};
    int p, q, r;
    p = ++arr[1];
    q = arr[1]++;
    r = arr[p++];
    printf("%d, %d, %d", p, q, r);
    return 0;
}
```


a) 3 4 5

c) 4 3 4

b) 3 4 4

d) 4 4 5

18. How do you initialize an array in C?

a) `int arr[3] = (1,2,3);`

c) `int arr[3] = {1,2,3};`

b) `int arr(3) = {1,2,3};`

d) `int arr(3) = (1,2,3);`

19. Which of the following is the correct way to declare a multidimensional array in Java?

a) `int[] arr;`

c) `int[][]arr;`

b) `int arr [[]];`

d) `int [[]] arr;`

20. 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**

21. Assuming int is of 4bytes, what is the size of `int arr[15];`?

a) 15

c) 11

b) 19

d) 60

22. 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**

23. 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

24. What is the output of C program.?

```
int main(){
    struct book{
        int pages;
        char name[10];
    }a;
    a.pages=10;
    strcpy(a.name,"Cbasics");
    printf("%s=%d", a.name,a.pages);
    return 0;
}
```

a) empty string=10

c) **Cbasics=10**

b) C=basics

d) Compiler error

25. Choose a correct statement about C structures.
- a) Structure elements can be initialized at the time of declaration.
 - b) Structure members can not be initialized at the time of declaration**
 - c) Only integer members of structure can be initialized at the time of declaration
 - d) None of the above
26. A C Structure or User defined data type is also called.?
- a) Derived data type
 - b) Secondary data type
 - c) Aggregate data type
 - d) All the above**
27. Which of the following are themselves a collection of different data types?
- a) string
 - b) structures**
 - c) char
 - d) all of the mentioned
28. User-defined data type can be derived by_____
- a) struct
 - b) enum
 - c) typedef
 - d) all of the mentioned**
29. Which operator connects the structure name to its member name?
- a) –
 - b) <-
 - c) .
 - d) Both <- and .
30. Which of the following cannot be a structure member?
- a) Another structure
 - b) Function**
 - c) Array
 - d) None of the mentioned
31. What will be the size of the following structure?
- ```
struct demo{
 int a;
 char b;
 float c;
}
```
- a) 12**
  - b) 8
  - c) 10
  - d) 9

32. What is the output of this program?

```
#include <stdio.h>
 struct {
 int i;
 float ft;
 } decl;
int main(){
 decl.i = 4;
 decl.ft = 7.96623;
 printf("%d %.2f", decl.i, decl.ft);
 return 0;
}
```

a) **4 7.97**

b) 4 7.96623

c) Compilation error

d) None of the above

33. Structure can't be declared globally.

a) True

**b) False**

34. The correct syntax to access the member of the ith structure in the array of structures is?

Assuming:

```
struct temp{
 int b;
}s[50];
```

a) s.b[i];

b) s.[i].b;

c) s.b[i];

**d) s[i].b;**

35. Size of a union is determined by size of the.

a) First member in the union

b) Last member in the union

**c) Biggest member in the union**

d) Sum of the sizes of all members

36. Members of a union are accessed as\_\_\_\_\_.

a) Union-name.member

b) Union-pointer->member

**c) Both a & b**

d) None of the mentioned

37. Which of the following share a similarity in syntax?

1. Union, 2. Structure, 3. Arrays and 4. Pointers

a) 3 and 4

**b) 1 and 2**

c) 1 and 3

d) 1, 3 and 4

38. What is the similarity between a structure, union and enumeration?

a) All of them let you define new values

**b) All of them let you define new data types**

c) All of them let you define new pointers

d) All of them let you define new structures



39. Array is a \_\_\_\_\_ data structure.

a) Non-linear

b) Primary

c) **Linear**

d) Data type

40. A global variable is declared \_\_\_\_\_.

a) **Outside of the function**

b) Inside of the function

c) With the function

d) Anywhere in the program

41. We can't declare array of structure.

a) True

**b) False**

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

```
#include <stdio.h>
```

```
struct student {
```

```
};
```

```
void main(){
```

```
 struct student s[2];
```

```
 printf("%d", sizeof(s));
```

```
}
```

a) 2

b) 4

c) 8

**d) 0**



## 5. FUNCTIONS

---

Position in Question Paper

Total Marks=14

Q.3. b) 4-Marks.

Q.3. d) 4-Marks.

Q.4. c) 4-Marks.

Q.5. a) 6-Marks.

---

### Descriptive Question

1. Write a short note on storage classes in c .
2. Write a short note on function definition with a example.
3. Write a short note on recursion with a example.
4. How will you return a value from a function with example.
5. Write a short note on register variables with example.
6. Discuss in detail about storage classes with examples.
7. Write a detailed note on functions .
8. Write a program to find the factorial of a given number using recursion .
9. Write a program to generate Fibonacci series.
10. Write a program to find the product of two given numbers.

## MCQ Question

(Total number of Question=Marks\*3=14\*3=42)

Note: Correct answer is marked with **bold**.

- Choose correct statement about Functions in C Language.
  - A Function is a group of c statements which can be reused any number of times.
  - Every Function has a return type.
  - Every Function may no may not return a value.
  - All the above.**
- Choose a correct statement about C Language Functions.
  - A function name can not be same as a predefined C Keyword.
  - A function name can start with an Underscore( \_ ) or A to Z or a to z.
  - Default return type of any function is an Integer.
  - All the above.**
- A function which calls itself is called a \_\_\_\_ function.
  - Self Function
  - Auto Function
  - Recursive Function**
  - Static Function
- How many values can a C Function return at a time.
  - Only One Value**
  - Of two values
  - Maximum of three values
  - Maximum of 8 values
- What is the output of C Program with functions?

```
void show();
int main(){
 show();
 printf("ARGENTINA ");
 return 0;
}
void show(){
 printf("AFRICA ");
}
```

  - ARGENTINA AFRICA
  - AFRICA ARGENTINA**
  - ARGENTINA
  - Compiler erro
- What are types of Functions in C Language.?
  - Library Functions
  - User Defined Functions
  - Both Library and User Defined**
  - None of the above
- In C, parameters are always
  - Passed by value**
  - Passed by reference
  - Non-pointer variables are passed by value and pointers are passed by reference
  - Passed by the value results

8. 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
9. What will be the output of the following C code?
- ```
#include <stdio.h>
void m() {
    printf("hi");
}
void main() {
    m();
}
```
- a) hi**
 - b) Run time error
 - c) Nothing
 - d) Varies
10. What will be the output of the following C code?
- ```
#include <stdio.h>
void main() {
 static int x = 3;
 x++;
 if (x <= 5){
 printf("hi");
 main(); } }
```
- a) Run time error
  - b) hi
  - c) Infinite hi
  - d) hi hi**
11. 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
12. Which of the following function declaration is invalid?
- a) int 1bhk(int);
  - b) int 1bhk(int a);
  - c) int 2bhk(int\*, int []);
  - d) all of the mentioned**
13. The value obtained in the function is given back to main by using \_\_\_\_\_ keyword.
- a) return**
  - b) static
  - c) new
  - d) volatile
14. What is the return-type of the function sqrt()?
- a) int
  - b) float
  - c) double**
  - d) depends on the data type of the parameter

15. What is the default return type if it is not specified in function definition?
- a) void
  - b) **int**
  - c) double
  - d) short int
16. Functions can return structure in C?
- a) **True**
  - b) False
17. The keyword used to transfer control from a function back to the calling function is
- a) switch
  - b) goto
  - c) **return**
  - d) exit
18. 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. 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 and IV
19. In the given below code, what will be return by the function get ()?
- ```
#include<stdio.h>
int get();
int main(){
    const int x = get();
    printf("%d", x);
    return 0;
}
int get() {
    return 40;
}
```
- a) **40**
 - b) 20
 - c) 0
 - d) Error
20. What does argv and argc indicate in int main(int argc, char *argv[]) ?
- a) argument constant, argument variable
 - b) **argument count, argument vector**
 - c) argument constant, argument vector
 - d) argument count, argument variable
21. The command line arguments are handled using?
- a) void()
 - b) **main()**
 - c) header files
 - d) macros
22. argv[] is a?
- a) a pointer array
 - b) It points to each argument passed to the program.
 - c) **Both A and B**

- d) None of the above
23. The maximum combined length of the command-line arguments including the spaces between adjacent arguments is
- a) 128 characters
 - b) 256 characters
 - c) 67 characters
 - d) **It may vary from one operating system to another**
24. Input/output function prototypes are defined in which header file?
- a) conio.h
 - b) stdlib.h
 - c) **stdio.h**
 - d) dos.h
25. What is the purpose of fflush() function.
- a) **flushes all streams and specified streams.**
 - b) flushes only specified stream.
 - c) flushes input/output buffer.
 - d) flushes file buffer.
26. Can you use the fprintf() to display the output on the screen?
- a) **Yes**
 - b) No
27. The variable that are listed in the function's calls are called
- a) **Actual parameter**
 - b) Declared parameter
 - c) Passed parameter
 - d) None of them
28. To make large programs more manageable programmers modularize them into subprograms that are called
- a) Operators
 - b) Classes
 - c) **Functions**
 - d) None of them
29. The standard C library file < stdlib.h> is used for
- a) **Declares a utility function**
 - b) Declares a mathematical function
 - c) Declares time function
 - d) Declares date function
30. Which unary operator is used for determining the size of an array?
- a) **sizeof**
 - b) size_array
 - c) s_array
 - d) size_ofarray
31. The prototypes of all standard library string functions are declared in the file string.h.
- a) **Yes**
 - b) No
32. Recursion is similar to which of the following?
- a) Switch Case
 - b) **Loop**
 - c) If-else
 - d) if elif else
33. Which of the following statements is true?
- a) Recursion is always better than iteration
 - b) **Recursion uses more memory compared to iteration**
 - c) Recursion uses less memory compared to iteration
 - d) Iteration is always better and simpler than recursion



34. Which of the following recursive formulas can be used to find the factorial of a number?
- a) $\text{fact}(n) = n * \text{fact}(n)$
 - b) $\text{fact}(n) = n * \text{fact}(n+1)$
 - c) **$\text{fact}(n) = n * \text{fact}(n-1)$**
 - d) $\text{fact}(n) = n * \text{fact}(1)$
35. int &x; this syntax is used when
- a) x is passed by value
 - b) **x is passed by reference**
 - c) x is declared outside the function
 - d) None of them
36. What is the scope of an external variable?
- a) Whole source file in which it is defined
 - b) From the point of declaration to the end of the file in which it is defined
 - c) Any source file in a program
 - d) **From the point of declaration to the end of the file being compiled**
37. What is the scope of a function?
- a) Whole source file in which it is defined
 - b) From the point of declaration to the end of the file in which it is defined
 - c) Any source file in a program
 - d) **From the point of declaration to the end of the file being compiled**
38. The scope of an automatic variable is:
- a) Within the block it appears
 - b) Within the blocks of the block it appears
 - c) Until the end of program
 - d) **Both (a) and (b)**
39. What are types of Functions in C Language.?
- a) Library Functions
 - b) User Defined Functions
 - c) **Both Library and User Defined**
 - d) None of the above
40. The prototypes of all standard library string functions are declared in the file string.h.
- a) **Yes**
 - b) No
41. What is the default return type if it is not specified in function definition?
- a) void
 - b) **int**
 - c) double
 - d) short int
42. Functions can return structure in C?
- a) **True**
 - b) False

6. POINTERS

Position in Question Paper

Total Marks=12

Q.1. f) 2-Marks.

Q.2. c) 4-Marks.

Q.4. c) 4-Marks.

Q.5. c) 6-Marks.

Descriptive Question

1. What is a pointer?
2. What is a function pointer?
3. Define file.
4. Mention any 4 file functions.
5. What is the use of fgetc () and fputc()
6. Give out the syntax of fopen() with an example
7. Define structure
8. What is union?
9. How will access structure?
10. What is far pointer?
11. What is call by value?
12. What is call by reference?
13. Write a short note on call by value with an example
14. Write a short note on call by reference with an example?
15. What is a pointer? How will you pass pointer to an array?
16. How will you pass a pointer to a function with an example?
17. Write a short note on structure? How structure members are accessed?
18. Explain the concept of union with an example
19. Write a program to read the content of a file
20. Write a short note on file modes
21. Write a program to swap two numbers using call by reference?
22. How will you perform file copy?
23. Write a detailed note on pointers.
24. Write a detailed note on structures
25. Discuss in detail about files
26. Write a program to find even and odd numbers and to store it in two separate files
27. Write a program to calculate student mark sheet processing and store the information in a file



MCQ Question

(Total number of Question=Marks*3=12*3=36)

Note: Correct answer is marked with **bold**.

1. If a variable is a pointer to a structure, then which of the following operator is used to access data members of the structure through the pointer variable?
 - a) .
 - b) &
 - c) *
 - d) ->
2. A pointer is
 - a) A keyword used to create variables
 - b) A variable that stores address of an instruction
 - c) **A variable that stores address of other variable**
 - d) All of the above
3. The operator used to get value at address stored in a pointer variable is
 - a) *
 - b) &
 - c) &&
 - d) ||
4. 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) **Same address**
 - b) Different address
 - c) Compile time error
 - d) Varies
5. Prior to using a pointer variable it should be
 - a) Initialized
 - b) Declared
 - c) **Both A and C**
 - d) None of the above
6. Address stored in the pointer variable is of type _____.
 - a) **Integer**
 - b) Float
 - c) Array
 - d) Character
7. Comment on this const int *ptr;
 - a) **You cannot change the value pointed by ptr**
 - b) You cannot change the pointer ptr itself
 - c) Both (a) and (b)
 - d) You can change the pointer as well as the value pointed by it

8. In C a pointer variable to an integer can be created by the declaration

- a) int p*;
c) int +p;
b) int *p;
d) int \$p;

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

```
#include <stdio.h>
void foo(int*);
int main(){
    int i = 10;
    foo((&i)++);
}
void foo(int *p){
    printf("%d\n", *p);
}
```

- a) 10
c) **Compile time error**
b) Some garbage value
d) Segmentation fault/code crash

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

```
#include <stdio.h>
int main(){
    int i = 11;
    int *p = &i;
    foo(&p);
    printf("%d ", *p);
}
void foo(int *const *p){
    int j = 10;
    *p = &j;
    printf("%d ", **p);
}
```

- a) **Compile time error**
c) Undefined behaviour
b) 10 10
d) 10 11

11. Which of the following is the correct syntax to send an array as a parameter to Function?

- a) **func(&array);**
c) func(*array);
b) func(#array);
d) func(array[size]);

12. A pointer to a pointer in a form of

- a) multiple indirection
c) **both a and b**
b) a chain of pointers
d) None of these

13. A pointer can be initialized with

- a) Null
c) Address of an object of same type
b) Zero
d) **All of the above**

14. Choose the right option string* x, y;
- a) **x is a pointer to a string, y is a string**
 - b) y is a pointer to a string, x is a string
 - c) Both x and y are pointers to string types
 - d) none of the above
15. Generic pointers can be declared with_____ .
- a) auto
 - b) **void**
 - c) asm
 - d) None of the above
16. What is size of generic pointer in c?
- a) 0
 - b) 1
 - c) **2**
 - d) Null
17. Which from the following is not a correct way to pass a pointer to a function?
- a) Non-constant pointer to non-constant data
 - b) A non-constant pointer to constant data
 - c) A constant pointer to non-constant data
 - d) **All of the above**
18. Referencing a value through a pointer is called
- a) Direct calling
 - b) **Indirection**
 - c) Pointer referencing
 - d) All of the above
19. The reason for using pointers in a Cprogram is
- a) Pointers allow different functions to share and modify their local variables.
 - b) To pass large structures so that complete copy of the structure can be avoided.
 - c) Pointers enable complex "linked" data structures like linked lists and binary trees.
 - d) **All of the above**
20. Output of following program?
- ```
include <stdio.h>
void fun(int *ptr){
 *ptr = 30;
}
int main(){
 int y = 20;
 fun(&y);
 printf("%d", y);

 return 0;
}
```
- a) 20
  - b) **30**
  - c) Compiler Error
  - d) Runtime Error

21. What is the output of this C code?

```
int main(){
int i = 10;
void *p = &i;
printf("%f\n", *(float*)p);
return 0;
}
```

- a) Compile time error  
c) 10

- b) Undefined behaviour  
d) **0.000000**

22. What is the output of this C code?

```
void main(){
int x = 0;
int *ptr = &5;
printf("%p\n", ptr);
}
```

- a) 5  
c) Nothing

- b) Address of 5  
d) **Compile time error**

23. What is the output of this C code?

```
void main(){
int x = 0;
int *ptr = &x;
printf("%d\n", *ptr);
}
```

- a) Address of x  
c) **0**

- b) Junk value  
d) Run time error

24. What is wild pointer?

- a) Pointer which is wild in nature  
c) **Pointer which is not initialized**

- b) Pointer which has no value.  
d) None

25. Are the expression \*ptr++ and ++\*ptr are same?

- a) True

- b) **False**

26. Can you combine the following two statements into one?

Char\*p;

p = (char\*) malloc(100);

- a) char p = \*malloc(100);  
c) **char \*p = (char\*)malloc(100);**

- b) char \*p = (char) malloc(100);  
d) char \*p = (char\*)(malloc\*)(100);

27. In which header file is the NULL macro defined?

- a) stdio.h  
c) **stdio.h and stddef.h**

- b) stddef.h  
d) math.h

- 28.** If a variable is a pointer to a structure, then which of the following operator is used to access data members of the structure through the pointer variable?  
a) .                                              b) &  
c) \*                                                d) ->
- 29.** A pointer is.  
a) A keyword used to create variables  
b) A variable that stores address of an instruction  
**c) A variable that stores address of other variable**  
d) All of the above
- 30.** The operator used to get value at address stored in a pointer variable is  
**a) \***                                                b) &  
c) &&                                                d) ||
- 31.** A pointer is.  
a) variable that stores address of an instruction  
**b) A variable that stores address of other variable**  
c) A keyword used to create variables  
d) None of these
- 32.** The reason for using pointers in a C program is  
a) Pointers allow different functions to share and modify their local variables.  
b) To pass large structures so that complete copy of the structure can be avoided.  
c) Pointers enable complex "linked" data structures like linked lists and binary trees.  
**d) All of the above**
- 33.** What is the default return type if it is not specified in function definition?  
a) void                                             **b) int**  
c) float                                            d) short int
- 34.** What is (void\*)0?  
**a) Representation of NULL pointer**                                                b) Representation of void pointer  
c) Error                                            d) None of above
- 35.** How many bytes are occupied by near, far and huge pointers (DOS)?  
**a) near=2 far=4 huge=4**                                                                        b) near=4 far=8 huge=8  
c) near=2 far=4 huge=8                                                                        d) near=4 far=4 huge=8
- 36.** Are the expression \*ptr++ and ++\*ptr are same?  
a) True                                             **b) False**