

Raj Kumar Goel Institute of Technology, Ghaziabad				
Semester I				
Subject Name: PPS				
Subject Code: BCS 101				
Total Marks: 50				
Time: 01:30 Hours				
Note: Attempt all questions. If you require any missing data, then choose suitably.				
Section - A				
Q.1 Attempt all parts of the following. (2 x 5=10)				
(a) What is memory hierarchy diagram?	R1	2021	2	
(b) What is difference b/w object code & source code?	R1	2021	2	
(c) Define the identifier with its rules.	R2	2021	2	
(d) What is the output of this C code?	R2	2022	2	
if (m==0)				
{				
m+=5;				
m+=5;				
m+=5;				
printf("m=",m);				
}				
(e) What is L-value in C language with a proper diagram?	R1	2020	2	
Section - B				
Q.2 Attempt all parts of the following. (5 x 4 =20)				
(a) Explain the following.	R2	2021	5	
(i) Compiler & Interpreter (ii) Function of operating system				
(b) Explain the types of errors in C language?	R2	2021	5	
(c) Draw a flow chart and program to check the given value is Even or Odd.	R2	2022	5	
(d) Explain the operator precedence and associativity with an example.	R2	2022	5	
Section - C				
Q.3 Attempt any one part of the following. (10x1 = 10)				
(a) Draw the architecture of digital computer system and explain its all components.	R2	2021	10	
(b) Explain various types of data types with their size, range and format specifier.	R2	2021	10	
Q.4 Attempt any one part of the following. (10x1 = 10)				
(a) Explain with proper example: (i) Conditional operator (ii) Bitwise Operator (iii) Logical Operator.	R2	2021	10	
(b) Write a program to find the greatest value into three values using conditional operator.	R2	2021	10	

Array :- Data

In C programming, an array is a collection of elements of the same data type, stored in contiguous memory locations. Arrays are used to store multiple values in a single variable, instead of declaring separate variables for each value.

Types of Arrays

- 1. One-Dimensional Array – A simple list of elements.
- 2. Two-Dimensional Array – Used to represent matrices or tables.
- 3. Multi-Dimensional Array – Arrays with more than two dimensions (rarely used).

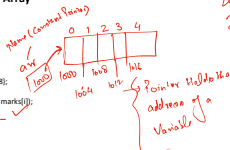
1. One-Dimensional Array

Syntax:

data_type array_name[size];

Example:

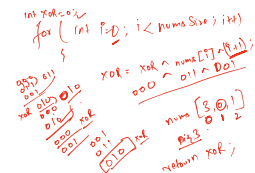
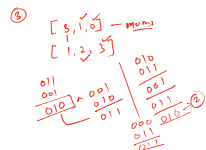
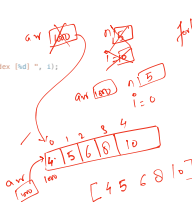
```
#include <stdio.h>
int main() {
    int marks[] = {85, 90, 78, 92, 88};
    for(int i = 0; i < 5; i++) {
        printf("marks[%d] = %d\n", i, marks[i]);
    }
    return 0;
}
```



```
#include <stdio.h>
void inputArray(int arr[], int n)
{
    for (int i = 0; i < n; i++) {
        printf("Enter the Value of index [%d] = ", i);
        scanf("%d", &arr[i]);
    }
}

void printArray(int arr[], int n)
{
    printf("The Array is:\n");
    for (int i = 0; i < n; i++) {
        printf("%d ", arr[i]);
    }
    printf("\n");
}

int main()
{
    int arr[5];
    inputArray(arr, 5);
    printArray(arr, 5);
    return 0;
}
```



2. Two-Dimensional Array (Matrix)

Syntax:

data_type array_name[row_size][col_size];

Example:

```
#include <stdio.h>
int main() {
    int matrix[2][3] = {{1, 2, 3}, {4, 5, 6}};
    for(int i = 0; i < 2; i++) {
        for(int j = 0; j < 3; j++) {
            printf("matrix[%d][%d] = %d\n", i, j, matrix[i][j]);
        }
        printf("\n");
    }
    return 0;
}
```

Accessing Array Elements

- Array elements are accessed using their index.
- Indexing starts from 0.
- Example: marks[0] → first element, marks[4] → last element.

Important Points

- Array size must be a constant at compile time (in standard C).
- The name of the array (e.g., marks) represents the base address (starting address) of the array.
- You can use arrays with loops to perform operations easily.

Example: Sum of Array Elements

```
#include <stdio.h>
int main() {
    int arr[5] = {10, 20, 30, 40, 50};
    int sum = 0;
    for(int i = 0; i < 5; i++) {
        sum += arr[i];
    }
    printf("Sum = %d", sum);
    return 0;
}
```

Sum = 150