

## **C -Programming**

### **1.Introduction of C programming**

- **What is Program and Programming Language**
- **Algorithm**
- **Features of C programming**
- **Applications of C**
- **variables and Operators**
- **Data types (int, float, char, double) and keywords**
- **Operator precedence and association**

### **2. Setting up environment for C programming**

- **Setting up IDE for C programming**
- **Program structure of C (How to write C program)**
- **Basic C programs with User input**
- **Functions scanf(), printf()**

### **3. Control Statements in C**

- **Control statements in C**
- **If, If-else, switch case, Ternary Operator**
- **break and continue statements**
- **Interview Questions**

### **4. Loops**

- **Loop in C**
- **Why Loops**
- **Types of loops (For, do-while, while)**
- **Nested Loops**
- **Basic Pattern programs with loops**

### **5.Functions**

- **Functions in C**
- **Defining Functions**
- **Memory structure of exe file in C**
- **Execution flow of functions**
- **Local variable and global variables**
- **Call by value and call by reference with functions**
- **Types of functions**
- **Creating User defined function**
- **Recursion**
- **Benefits of functions**

#### **6.Pointers in C**

- **Pointer introduction**
- **Uses of Pointers**
- **Defining pointers**
- **Pointer Arithmetic**
- **Pointers and Arrays**

#### **7. Arrays**

- **Introduction to Arrays**
- **Application of Array**
- **Memory representation of an array**
- **1D array,2D array**
- **Passing array to functions**
- **Array of Pointers**

#### **8.Storage Classes in C**

- **What are Storage Classes**
- **Types of Storage classes (static, auto, extern, register)**

- Use of static keyword

## 9. Dynamic Memory Allocation (DMA)

- Dynamic Memory Allocation
- Why Dynamic Memory allocation
- Uses of malloc (), calloc(), realloc(), free functions with Example
- What is Dangling pointers
- Enum in C

## 10. File Handling

- Need of Files
- Reading Writing with text files
- Functions fopen(), fclose(), fprintf(), fscanf()
- File modes
- Advantages of files

## 11. Structure and Union

- What is Structure and need of Structure
- How to define Structure and access structure variable
- How to pass structure to functions
- Union
- Memory occupation of Structure and Union
- difference between Structure and Union
- How to define Union

## 12. Debugging and Error handling

- Types of errors
- Debugging Techniques.