

UNIT-I

- 1) Write a program to illustrate bitwise operators.
- 2) Write a program to print all the alphabets and their equivalent ASCII values.
- 3) Write a program to calculate the sum of squares of first n natural numbers using while loop.
- 4) Write a program to illustrate short hand operators used in C.
- 5) Write a program to print the multiplication table in the following format.

	1	2	3	4	5
1	1	2	3	4	5
2	2	4	6	8	10
3	3	6	9	12	15
4	4	8	12	16	20
5	5	10	15	20	25

- 6) Write a program to calculate the factorial of a given number.
- 7) Write a program to calculate sum of squares of cubes of first n natural numbers.
- 8) Write a program to reverse the given number.
- 9) Write a program to calculate m^n value using do-while loop.
- 10) Write a program to check whether the given number is a palindrome or not.
- 11) Write a program to check whether the given number is an Armstrong number or not.
- 12) Write a program to check whether the given number is a perfect number or not.
- 13) Write a program to print the following format.

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                *
            *   *
        *   *   *
    *   *   *   *
*   *   *   *   *
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- 14) Program to calculate lucky number.
- 15) Write a program to calculate the result of the series accurate up to 7th digit.
 $x + x^3/3! + x^5/5! + \dots$
- 16) An electric power distribution company charges its domestic consumers as follows.

Consumption Units	Rate of Charge
0-200	Rs.0.50 per unit
201-400	Rs.100 plus Rs.0.65 per unit excess 200
401-600	Rs.230 plus Rs.0.80 per unit excess of 400.

Write a C program that reads the customer number and power consumed and prints the amount to be paid by the customer.

- 17) Program to find the roots of the quadratic equation using bisection method.

UNIT-II

- 18) Write a program to print the elements of an array in reverse order.
- 19) Write a program to add all the elements of a two dimensional array.
- 20) Write a program to find the transpose of a given matrix.

- 21) Write a program to find the smallest and largest element in a two dimensional array.
- 22) Write a program to illustrate call by value.
- 23) Write a function to calculate the factorial of a given number.
- 24) Write a function to sort the elements of an array.
- 25) Write a recursive function to find the roots of the quadratic expression using bisection method.
- 26) Write a program to copy string to another without using string handling functions.
- 27) Write a program to check whether a given string is a palindrome or not.
- 28) Write a function to find the largest element in an array.
- 29) Write a recursive function power (base, exponent) that when invoked returns base exponent.
- 30) Program to sort the characters in a given string.
- 31) Write a function to convert all the upper case letters to lower case and lower case letters to upper case in a given string.
- 32) Program to undefine an already defined macro.
- 33) Program to illustrate conditional compilation using #if, #end if, #else.

UNIT-III

- 34) Write a program to calculate length of the string using pointers.
- 35) Write a function to swap two variables using pointers.
- 36) Program to illustrate pointer arithmetic.
- 37) Write a function to calculate sum of two numbers using pointers to functions.
- 38) Write a program to perform matrix multiplication using pointers.
- 39) Write a program to find the largest in an array using pointers.
- 40) Program to arrange the given numbers in ascending order.
- 41) Write a C program using pointer for string comparison.
- 42) Program to reverse the string using pointers.
- 43) Program to perform sorting using command line arguments.
- 44) The names of employees of an organization are stored in three arrays, namely, first name, second name, and last name. Write a program using pointers to concatenate the three parts into one string to be called name.
- 45) Program to merge two sorted arrays so that the resultant array is in sorted order using pointers.

UNIT-IV

- 46) Write a C program to compute the monthly pay of 100 employees using each employee's name, basic-pay. The DA is computed as 52% of the basic pay. Gross-salary (Basic-pay+DA).Print the employees name and gross salary.
- 47) Write a program to calculate and print student wise total for 50 students and 3 subjects. The structure should contain 3 subjects and total.
- 48) Write a program to calculate and print student wise total for 50 students and 3 subjects using pointers. The structure should contain 3 subjects.
- 49) Write a program to store the information of vehicles use bit fields to store the status information. Assume the vehicle object consists of type, fuel and model member fields. Assume appropriate number of bits for each field.
- 50) Program for illustration of user defined data types using typedef.
- 51) Program for illustration of nested structures.

- 52) Program to add or delete a record of a particular employee based on his code. The structure should contain name, designation, code, salary. Program should also provide the flexibility to update any employees record.
- 53) Define a structure that represent a complex number (contains two floating point members, called real and imaginary). Write functions to add, subtract, multiply and divide two complex numbers.
- 54) A company markets Hardware items. Create a structure "hwitem" that stores the title of the item, it's price, an array of three floats so that it can record the sale in rupees of a particular item for the last three months, category of the item and it's original equipment manufacturer. Write a short program that provides facility to read N number of items information, append new item, and displays all records.
- 55) Define a structure to represent a data. Use your structures that accept two different dates in the format mmdd of the same year. And do the following: Write a C program to display the month names of both dates.
- 56) Consider a structure master include the information like name, code, pay, experience write a program to delete and display the information contained in master variables for a given code.
- 57) Write a program to use structure within union. Display the contents of structure elements.

UNIT-V

- 58) Write a C program to read a text file and to count Number of characters, Number of words and Number of sentences and write in an output file.
- 59) Write a C program to read the text file containing some paragraph. Use fseek() and read the text after skipping n characters from the beginning of the file.
- 60) Write a C program to read the text file containing some paragraph. Print the first n characters from the beginning of the file.
- 61) Write a program to print the output of the following format in an OUTPUT file.

Number	Square	Cube
2	4	8
3	9	27
- 62) Write a C program to read data from a file named INPUT containing numbers. Write all even numbers to file called EVEN and odd numbers to file called ODD.
- 63) Program to print the n characters from mth position in the file.
- 64) Program to print the current position value of the file pointer.
- 65) Program to check whether end of file has been reached or not using feof() function.
- 66) Program to check whether any data errors are present and print the relevant information using ferror() function.
- 67) Write a program to detect error while opening a file that does not exist.
- 68) Write a C program to open a pre-existing file and add information at the end of file. Display the contents of the file before and after appending
- 69) Program to copy one file to another.
- 70) Write program to read a text file and convert the file contents in capital (upper-case) and write the contents in an output file.
- 71) Candidates have to score 90 or above in the IQ test to be considered eligible for taking further tests. All candidates who do not clear the IQ test are sent reject letters

and others are sent call letters for further tests. The selected list and other conversation have to be written to file.

UNIT-VI

- 72) Write a non-recursive simulation of towers of Hanoi.
- 73) Write recursive function for towers of Hanoi.
- 74) Program to convert Prefix to postfix using stacks.
- 75) Program to convert postfix expression to prefix expression.
- 76) Write a program to evaluate postfix expression
- 77) Program to evaluate prefix expression.
- 78) Write a program to implement dequeues
- 79) Program to implement priority queues.
- 80) Program to check whether a given string is palindrome or not using stacks.

UNIT-VII

- 81) Write a program in 'C' to form a list consisting the intersection of the elements of two lists
- 82) Write a routine to reverse elements of a doubly linked list by traversing the list only once
- 83) Write a program to count the number of non-leaf nodes in a binary tree
- 84) Write a program to count the number of leaf nodes in a binary tree
- 85) Write a program to implement circular using double linked list.
- 86) Write a program to perform polynomial addition.
- 87) Write a program to perform polynomial multiplication.
- 88) Function to reverse the single linked list.
- 89) Write non recursive functions for binary tree traversals.
- 90) Program to implement binary search tree using arrays.
- 91) Write a C program to exchange two nodes of a singly linked list.
- 92) Program to implement breadth first search.
- 93) Program to implement depth first search.
- 94) Represent a singly linked list using an array. Write routines to insert and delete elements for this representation.
- 95) Write a routine SPLIT() to split a singly linked list into two lists so that all elements in odd position are in one list and those in even position are in another list.
- 96) Represent a doubly linked list using an array. Write routines to insert and delete elements for this representation.
- 97) Write a function to merge to doubly linked lists and arrange the numbers in ascending order.

UNIT-VIII

- 98) Write a program to implement merge sort
- 99) Derive the efficiency of merge sort
- 100) Derive the efficiency of binary search.