

Programme: MCA Semester:I Subject code ITA419

Course name: Programming in C and Algorithm Design

Cycle sheet II

L T P C 3 0 2 4

## **FUNCTIONS**

1. Write an user-defined function named SHIFT to circularly shift the given array elements towards the right. Call this function in the main( ) to perform the shifting for specified number of times.
2. Code a program to accept an integer value, pass it to two different user-defined functions named SQUARE and SQUAREROOT to compute the square and square root of a given number respectively and print the results in the main() function.
3. Write a program using user-defined function to check whether the given number is a strong number or not.

Note: Sum of factorials of all digits of a number should be equal to the original number.

## **ARRAYS**

4. Program to print transpose of a matrix
5. Program to add and subtract two matrices using separate functions.
6. Program to multiply two matrices.
7. Program to sort the numbers in an array using bubble sort.
8. Program to search for a given number in the given list of numbers.

## **STRUCTURES**

9. Write a program to accept record of students using array of structures. The structure should contain student name ,regno, marks of 5 subjects. Calculate total and average of marks and display student with highest average.
10. Create a structure with tag population with fields Men and Women. Define another structure with tag State with fields' state name, number of districts and total population. Create a structure within another structure using state and population. Read and display data.
11. Write a program to accept record of different state using array of structure. The structure contains state name, population, literacy rate and capital income. Pass the address of structure variable to user defined function and display the content .

## **STRING HANDLING**

12. Write a program to check whether the given word is a palindrome or not without using library functions.
13. Write a menu driven program to perform the following string operations without using built-in functions.
  - i) String length
  - ii) String Copy
  - iii) String Concatenation
  - iv) String Compare
14. Write a program to read an array of names and sort them in alphabetical order.
15. Write a program to search for a given string in the given sentence.