

- (a) A 5-digit positive integer is entered through the keyboard, write a recursive and a non-recursive function to calculate sum of digits of the 5-digit number.
- (b) A positive integer is entered through the keyboard, write a program to obtain the prime factors of the number. Modify the function suitably to obtain the prime factors recursively.
- (c) Write a recursive function to obtain the first 25 numbers of a Fibonacci sequence. In a Fibonacci sequence the sum of two successive terms gives the third term. Following are the first few terms of the Fibonacci sequence:
- 1 1 2 3 5 8 13 21 34 55 89...
- (d) A positive integer is entered through the keyboard, write a function to find the binary equivalent of this number:
- (1) Without using recursion
 - (2) Using recursion
- (e) Write a recursive function to obtain the sum of first 25 natural numbers.
- (f) There are three pegs labeled A, B and C. Four disks are placed on peg A. The bottom-most disk is largest, and disks go on decreasing in size with the topmost disk being smallest. The objective of the game is to move the disks from peg A to peg C, using peg B as an auxiliary peg. The rules of the game are as follows:
- (1) Only one disk may be moved at a time, and it must be the top disk on one of the pegs.
 - (2) A larger disk should never be placed on the top of a smaller disk.

Write a program to print out the sequence in which the disks should be moved such that all disks on peg A are finally transferred to peg C.

- (g) If a positive integer is entered through the keyboard, write a recursive function to obtain the prime factors of the number.