Subject: Computer Science

Course Code: SH/CSC/301/C-5   **Course ID: 31521**

Course Title: Data Structures (Practical)

Full Marks: 15   **Time: 2 Hrs.**

<u>**The figures in the margin indicate full marks**</u>

1. **Answer *any one* of the following questions:**   **(15)**

   a) Write a program to search an element from a list. Give user the option to perform Linear or Binary search. Use Template function

   b) Implement Doubly Linked List using Templates. Include functions for insertion, deletion and search of a number, reverse the list.

   c) Write a program to calculate factorial of a given number:

      (i)   Using recursion

      (ii) Using iteration.

   d) Write a program to display Fibonacci series:

      (iii) Using recursion

      (iv) Using iteration.

   e) Write a program to calculate GCD of two numbers:

      (v) Using recursion

      (vi) Using iteration.

   f) Perform Stack operations using Linked List implementation.

   g) Perform Stack operations using Array implementation. Use Template.

   h) Write a program to implement Upper Triangular Matrix using one-dimensional array.

   i) Write a program to implement Lower Triangular Matrix using one-dimensional array.