

**VIJAYA DEGREE COLLEGE**  
**II SEM BCA**  
**Model Question paper-3**  
**SUBJECT: DATA STRUCTURES USING C(BCA203T)**

**TIME: 3 hrs**

**MARKS: 70**

**Section-A**

Answer any **TEN** questions ,each question carries **TWO** marks: **10X2=20**

1. What is Abstract data type?
2. What is time complexity.
3. Write algorithm to traverse linear arrays.
4. Write a C function to find length of string without using built-in function.
5. Compare linear search and binary search methods.
6. Give the node structure of a doubly Linked List.
7. How is stack represented in memory?
8. What is adjacency matrix?Give example.
9. What is circular linked list. Give example.
- 10.Mention the applications of stacks.
- 11.Define graph.
- 12.Mention the different types of tree traversal.

## SECTION-B

Answer any **FIVE** questions,each question carries **TEN** marks: **5X10=50**

13. (a) Explain the various operations performed on data structures.  
(b) Write an Algorithm to find substring of given string. **(5+5)**
14. (a) Explain insertion sort algorithm. **(5+5)**  
(b) Describe the concept of linear search technique with an example.
15. (a) Explain singly linked list with suitable example. **(5+5)**  
(b) Write an algorithm to insert a node in a linked list at the given position.
16. (a) Write an algorithm to convert an expression from infix to postfix.  
(b) Explain various types of queues. **(5+5)**
17. (a) What is recursion?. Write a C program to implement tower of hanoi problem using recursion .  
(b) Write a note on adjacency list. **(5+5)**
18. (a) Explain various tree terminologies with a neat diagram .  
(b) Explain any one graph traversal algorithm. **(5+5)**
19. (a) Write a C program to find gcd and lcm of two numbers using recursion . **(5+5)**  
(b) Explain adjacency matrix and adjacency list with suitable example.
20. (a) Explain any five mathematical functions . **(5+5)**  
(b) Write a c function to sort n elements using bubble sort.