

# VIJAYA COLLEGE

R V ROAD,BASAVANGUDI, BANGALORE-04

Model question paper -3

Computer Science

DATA STRUCTURES USING C-CST2

## SECTION A

**I . ANSWER ANY TEN QUESTIONS.**

**10X2=20**

1. What is abstract data type?
2. What is time complexity?
3. Write an algorithm to traverse linear arrays.
4. write an algorithm to find the length of a string without using builtin function.
5. What is a circular linked list? Give example.
6. Mention any two applications of linked list.
7. Explain the stack representation in memory.
8. Define recursion.
9. What is priority queue?
10. What is adjacency matrix? Give example.
11. Define graph.
12. Mention the different tree traversal.

## SECTION B

**II . ANSWER ANY FIVE QUESTIONS. EACH QUESTION CARRIES TEN MARKS.**

**5X10=50**

13. a) Explain the operations performed on non primitive data structures. 5
- b) Write a C program to copy one string into another without using built in function. 5
14. a) Write a C program to implement bubble sort. 5

- b) Write an algorithm to insert an element into an array. 5
15. a) Explain various types of linked list in detail. 5
- b) Write an algorithm to insert a node at the beginning of the linked list. 5
16. a) Write an algorithm to evaluate the following postfix expression. 5
- b) Use the algorithm to evaluate the following postfix expression. 5

6, 5, \*, 3, 2, \*, +, 8,, 4, 1, -

17. a) Write a c program to implement stack operations. 5
- b) Explain dqueue in detail. 5
18. a) Write an algorithm to insert an element into circular queue. 5
- b) Explain queue overflow and underflow. 5
19. a) Explain sequential representation of graphs in memory. 5
- b) Mention the graph traversal algorithms and explain any one of them. 5
20. a)List the properties of binary tree. 5
- b) Construct binary tree given inorder and postorder traversals. 5

Inorder: E A C K F H D B G

Postorder: E C K A H B G D F

Also specify the preorder traversal.