

VIJAYA DEGREE COLLEGE
II SEM BCA
Model Question paper-2
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 non-linear data structure?
2. Define space and time complexity of an algorithm.
3. Define Sparse matrix.
4. Define recursion with suitable example.
5. Differentiate between sorting and searching.
6. List disadvantages of Linked List
7. Explain Double-Ended queue.
8. Differentiate between stacks and queues.
9. Define doubly linked list with example.
10. Mention the applications of queue.
11. Define the terms :
 - i) Graph
 - ii) Tree.
12. Give Examples for:
 - i) Complete binary tree
 - ii) Degree of vertex.

SECTION-B

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

13. (a) Explain the various types of data structures.
(b) Briefly explain any four string handling functions. **(5+5)**
14. (a) Explain selection sort algorithm.
(b) Write an algorithm to delete an element from the array. **(5+5)**
15. (a) Explain various types of linked lists. **(5+5)**
(b) Write an algorithm to insert a node at the beginning of linked list.
16. (a) Write an algorithm to evaluate a valid postfix expression. **(5+5)**
(b) Use the algorithm to evaluate the following postfix expression:
6,5,^,3,2,*,+,8,7,4 -
17. (a) Write a C program to implement stack operations .
(b) What is dequeue? Explain with suitable example. **(5+5)**
18. (a) Explain sequential representation of graphs in memory .
(b) Explain DFS traversal algorithm. **(5+5)**
19. (a) Convert the following expression from infix to prefix:
a,b,c,*,-,d,e,f,+
(b) Write a note on queues. **(5+5)**
20. (a) Explain 1) leaf node 2) level of node 3) strictly binary tree.

(b) Write the inorder, preorder and postorder tree traversal for the given binary tree.

(5+5)

