

Roll No. :

Total No. of Questions : 11]

[Total No. of Printed Pages : 4

JSB-4036

BCA (IVth Semester) Examination, June-2025

DATA STRUCTURE

Paper - BCA 5 DCCT-43

Time : 3 Hours]

श्री जैन (पि.पी.) कॉलेज, गीतपुरी, [Maximum Marks : 80

Section-A

(Marks : $1 \times 10 = 10$)

Note :- Answer all *ten* questions. Questions (i) to (v) are multiple-choice questions, while questions (vi) to (x) are fill in the blank questions. Each question carries 1 mark.

Section-B

(Marks : $5 \times 5 = 25$)

Note :- Answer all *five* questions. Each question has internal choice (Answer limit 150 words). Each question carries 5 marks.

Section-C

(Marks : $15 \times 3 = 45$)

Note :- Answer any *three* questions out of five (Answer limit 400 words). Each question carries 15 marks.

Section-A

1. (i) Which data structure follows the Last In First Out (LIFO) ?
 - (a) Queue
 - (b) Stack
 - (c) Array
 - (d) Tree

(ii) Which data structure follows Breadth-First Search ?

- (a) Stack
- (b) Queue
- (c) List
- (d) Tree

(iii) Which data structure is non-linear ?

- (a) Array
- (b) List
- (c) Tree
- (d) Queue

(iv) What is the Maximum no. of children in a Binary tree ?

- (a) One
- (b) Two
- (c) Three
- (d) Four

(v) Which data structure uses nodes and edges ?

- (a) Array
- (b) Graphs
- (c) Stack
- (d) Queue

- (vi) A linear data structure storing elements in contiguous memory is called
- (vii) A data structure that follows First-In First-Out is called
- (viii) is the topmost element of a tree.
- (ix) A allows insertion at both ends.
- (x) A self balancing binary search tree is called

Section-B

2. What is Recursion ? Explain.

Or

Explain Prefix, Postfix and Infix.

3. Differentiate between Stack and Queue.

Or

Explain Basic operations of linked list.

4. Write a note on Height balanced tree.

Or

Write applications of Binary Tree.

5. Write a program for sequential search.

Or

Write a program for insertion sort.

6. Differentiate between Depth First Search and Breadth First Search.

Or

Write a note on Spanning Tree.

Section–C

7. Explain priority Queue.
8. Explain Circular linked list.
9. Explain traversal techniques of Binary Tree.
10. Explain Quick sort with an example.
11. Explain Shortest Path Algorithm.