

Fourth Semester FYUGP Degree (Reg) Examination April
2026

KU4DSCCSC209 - DATA STRUCTURES
2024 Admission onwards

Time : 1.5 hours

Maximum Marks : 50

Section A

Answer any 6 questions. Each carry 2 marks.

1. Define two-dimensional array.
2. what is a linear array?
3. Define Directed graph (Digraph).
4. Define Edge.
5. What is the condition to move to the right child while searching in a BST?
6. what is the minimum and maximum node possible in a BT of height h?
7. What is Stack overflow?
8. State whether a linked list is a linear or non-linear data structure.

Section B

Answer any 4 questions. Each carry 6 marks.

9. Develop an algorithm for searching an element in a Binary Search Tree and explain with an example.
10. Design and write a C program to create a Binary Search Tree and perform insertion operation.
11. Differentiate between tree and binary tree .
12. What is Deque?
13. Explain the memory representation of linked list using array and structure
14. Explain the concept of linked list with example?

Section C

Answer any 1 questions. Each carry 14 marks.

15. Explain Linear Search and Binary Search algorithms in detail. Write the algorithm for each, illustrate their working with suitable examples, and compare their time complexities.
16. Create a graph with 7 vertices and 8 edges.
 - (a) Draw the graph
 - (b) Form the adjacency matrix
 - (c) Identify all vertex degrees
 - (d) Check whether the graph contains a cycle.

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