

Seat No.

MAR_APR 2025 SUMMER EXAMINATION**11731 Bachelor of Technology (NEP-2.0)****Sub. Name: Data Structures****Sub. Code: 63526/73278****Day and Date: MAY ,07-05-2025****Total Marks: 70****Time: 10:30 AM To 01:00 PM**

- Instructions:**
1. All questions are compulsory
 2. Assume suitable data wherever necessary and mention it boldly
 3. Figures to the right indicate full marks

Q1) Solve any 2 of the following. (7 marks each) [14]

- a. How search operation is carried out on data structure? By how many ways it can be carried out? [7]
- b. Define data structure and differentiate between Linear and Non linear data structure. [7]
- c. Write a note on Algorithm and explain Time and Space complexity. [7]

Q2) Solve any 2 of the following. (7 marks each) [14]

- a. Define Sorting and Write a note on following with their algorithms [7]
 - i. Selection Sort
 - ii. Quick Sort
 - iii. Radix Sort
- b. What is Linked List? List and explain its types with suitable figure. [7]
- c. Construct a binary search tree using following [7]
50, 15, 62, 5, 20, 58, 91, 3, 8, 37, 60, 24.
Justify each insertion operation.

Q3) Solve any 2 of the following. (7 marks each) [14]

- a. Choose appropriate search technique and apply over following set of data to search given key elements. [7]
99,11, 41, 58, 62, 100, 5, 85, 89, 91, 23
Key: 23
Key :91
Key: 100
- b. Define tree. Explain different Tree terminologies. [7]

- c. Explain following graph storage mechanisms
i. Adjacency Matrix
ii. Adjacency List

[7]**Q4) Solve any 2 of the following. (7 marks each)****[14]**

- a. Write a C Program or Pseudo Code for implementation of Stack using array. **[7]**
- b. What is Doubly Link List? List various operations performed on Doubly Link List and explain any one with algorithm **[7]**
- c. What is Hashing? What are the components of Hashing? Describe different Hash functions. **[7]**

Q5) Solve any 2 of the following. (7 marks each)**[14]**

- a. Define Tree and Write a note on following **[7]**
i. Binary Tree
ii. B Tree
iii. B + Tree
- b. Apply the any sorting technique arrange following in Descending manner. Explain each step with algorithm. **[7]**
534,121,908,45,109, 567,67, 5, 106, 237
- c. Define Queue and describe Enqueue and Dequeue in detail. **[7]**

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -

This Question Paper may be distributed for following Subjects as common code.

सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

1] (101) Bachelor of Engineering (63526) Data Structures Part 2 SEM 3

2] (1154) B.Tech. CBCS (73278) Data Structures Part 2 SEM 3