

Seat No. **OCT-NOV 2025 WINTER EXAMINATION****11731 Bachelor of Technology (NEP-2.0)****Sub. Name: Data Structures Using C****Sub. Code: 114461/112911****Day and Date: Thursday ,18-12-2025****Total Marks: 60****Time: 02:30 PM To 05:00 PM****Instructions: 1. Draw neat labelled diagrams wherever necessary****Special Inst.: 1. Question no. 1 & 5 are compulsory****2. Answer any two questions from Q. No. 2 to Q. No.4****Q1) Answer any three questions from the following. [15]**

- a. Define Data Structure and describe its types with classification. [5]
- b. With a suitable example, explain the working of the quick sort algorithm. [5]
- c. Write applications of stack. [5]
- d. Write algorithm for enQueue and deQueue operation of Circular queue. [5]

Q2) Answer the following questions. [15]

- a. Explain various types of Linked List with appropriate diagrams. [8]
- b. Write a C code to create nodes in Linked List and count number of nodes present in Linked List. [7]

Q3) Answer the following questions. [15]

- a. What is Binary Search Tree? Draw the BST for the given input: 10, 1, 5, 15, 10, 20, 2, 16, 7, 20, 2, 1 .Write the inorder traversal of the BST. [8]
- b. What is Binary Tree? Explain its types. [7]

Q4) Answer the following questions. [15]

- a. What is graph? With suitable example describe how graph is represented using sparse matrix. [8]
- b. Explain Depth First Search with Example. [7]

Q5) Write short note on [15]

- a. Circular Queue [5]

- b.** AVL Rotations [5]
- c.** Graph Terminologies [5]

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] (1154) B.Tech. CBCS (114461) Data Structures Using C Part 2 SEM 3
- 2] (11731) Bachelor of Technology (NEP-2.0) (112911) Data Structures Using C Part 2 SEM 3