

Seat No. **OCT-NOV 2025 WINTER EXAMINATION****11731 Bachelor of Technology (NEP-2.0)****Sub. Name: Data Structures****Sub. Code: 114469/112921****Day and Date: Thursday ,18-12-2025****Total Marks: 60****Time: 02:30 PM To 05:00 PM**

Instructions: 1. Assume suitable data wherever necessary and mention it boldly
 2. Draw neat labelled diagrams wherever necessary
 3. Figures to the right indicate full marks

Special Inst.: 1. Question no. 1 & 5 is compulsory
 2. Solve any two questions from Q. No. 2 to Q. No.4

Q1) Solve any three questions from following. [15]

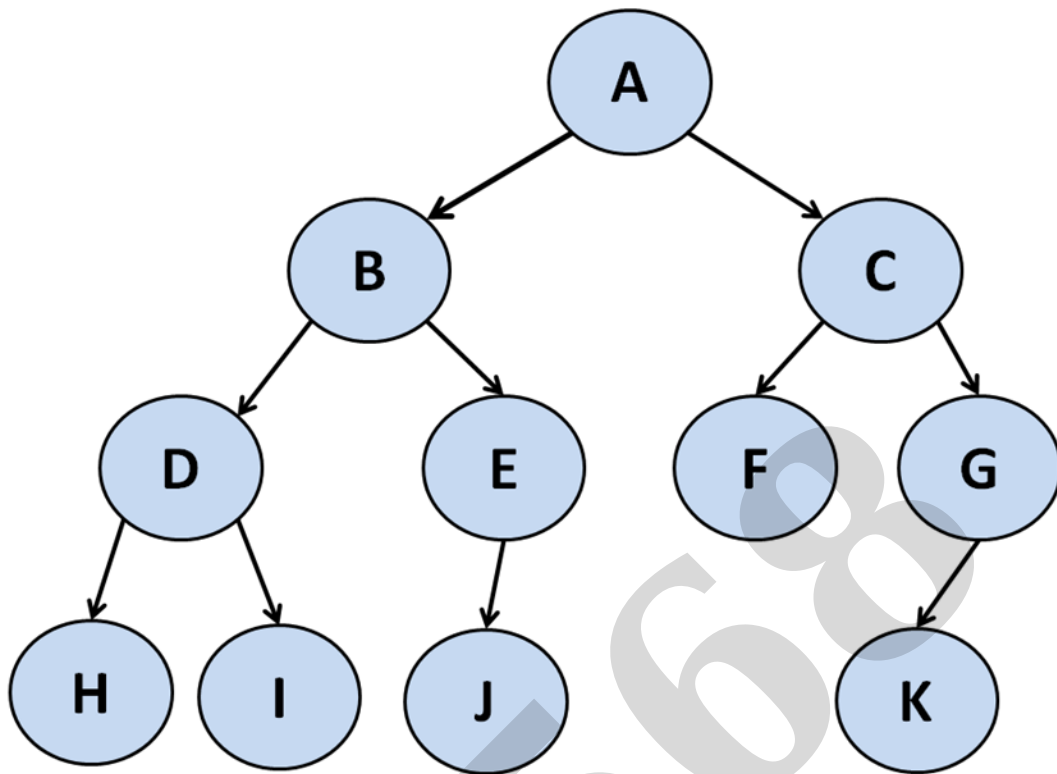
- a. What is data structure? Explain different operations performed on it with example. [5]
- b. Explain Linear Search Algorithm with example. In which application this algorithm is used? [5]
- c. Explain push and pop operations on stack with the help of examples. [5]
- d. What is sorting technique? Solve the following list using insertion sort [5]
 12, 33, 13, 25, 6, 77

Q2) Solve the following questions. [15]

- a. Design a node for a singly linked list and write the following functions [8]
 i) To add a node at last position
 ii) To delete a node at first position
- b. Explain the difference between array and linked list [7]

Q3) Solve the following questions [15]

- a. What is a tree? Explain any five key terms associated with a tree. [8]
- b. Write down the inorder, preorder and postorder traversal of the following binary tree [7]



Q4) Solve the following questions [15]

- a. What is a graph? List and explain any five key terms associated with graphs. [8]
- b. What are the different methods of representing a graph? [7]

Q5) Write short note [15]

- a. Types of Linked list [5]
- b. Difference between complete binary tree and perfect binary tree [5]
- c. BFS graph traversal [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] (11731) Bachelor of Technology (NEP-2.0) (112921) Data Structures Part 2 SEM 3

2] (1154) B.Tech. CBCS (114469) Data Structures Part 2 SEM 3