

Seat No. **OCT-NOV 2025 WINTER EXAMINATION****11731 Bachelor of Technology (NEP-2.0)****Sub. Name: Data Structures Using C(CSE)****Sub. Code: 114464/112914****Day and Date: Wednesday,10-12-2025****Total Marks: 60****Time: 02:30 PM To 05:00 PM****Instructions: 1. All questions are compulsory
2. Draw neat labelled diagrams wherever necessary****Q1) Solve following MCQ.****[6]**

- i. Average case complexity is represented by —
- A. θ
 - B. Ω
 - C. O
 - D. None
- ii. Selection sort selects —
- A. Maximum or minimum element
 - B. Middle element
 - C. Random element
 - D. None
- iii. Circular queue helps to —
- A. Use memory efficiently
 - B. Waste memory
 - C. Increase overflow chances
 - D. None
- iv. Which operation is slow in linked list compared to array?
- A. Insertion
 - B. Deletion
 - C. Random Access
 - D. Traversal
- v. Maximum number of nodes in a binary tree of height h is
- A. h
 - B. 2h
 - C. $2^h - 1$
 - D. h^2
- vi. A graph with no cycles is called

- A. Tree
- B. DAG
- C. Complete graph
- D. Bipartite graph

- Q2) Answer the Following Questions. [12]**
- a. List and explain operations performed on Data Structure. [6]
 - b. Explain binary search with suitable example. [6]
- Q3) Answer the Following Questions. [12]**
- a. With suitable example explain push and pop operation of stack. [6]
 - b. Write a C program or Pseudo-code for following in Singly Linked List [6]
 - i) Add node at beginning
 - ii) Add node at End
- Q4) Answer the Following Questions. [12]**
- a. List and explain types of Binary tree. [6]
 - b. Explain DFS technique in graph with example. [6]
- Q5) Answer any 3 Questions of the following. [18]**
- a. Write note on Applications of Linked List. [6]
 - b. Explain Tree Traversal Techniques with example. [6]
 - c. Explain any three tree terminologies of graph with suitable example. [6]
 - d. What is B-Tree? Explain insertion operation on B-Tree. [6]

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) (112914) Data Structures Using C(CSE) Part 2 SEM 3

2] (1154) B.Tech. CBCS (114464) Data Structures Using C(CSE) Part 2 SEM 3