

FACULTY OF SCIENCE
B.Sc. (CBCS) II-Year (III-Semester) Regular Examinations, Dec-2022/Jan-2023
Computer Science-III
(Data Structures Using C++)

Time: 3 Hours

Max Marks: 80

SECTION-A

(4x5=20 Marks)

Answer any Four questions from the following

1. What is an Algorithm? How to develop, Validate and Analyse algorithm.
2. Write a note on Execution of Recursive Calls.
3. What are the Applications of Binary Trees?
4. Write about Selection Sort.
5. Discuss about Reversing a String.
6. Compare Singly Linked List and Doubly Linked List.

SECTION-B

(4x15=60 Marks)

Answer all the following questions

7. (a) What are the Prons and Cons of Arrays? Explain Memory Representation of multidimensional array in detail?
(OR)
(b) What is a Stack? Explain Representation of Stacks using Sequential Organization in detail with program code.
8. (a) What is Recurrence? Explain primitive operations of Queues and Double-Ended Queues in detail.
(OR)
(b) Explain the Representation of Stacks and Queues using Linked Singly lists? Write the applications of Linked list?.
9. (a) Explain Preorder, In order and post order Binary Tree Traversal? Write applications of Binary Trees.
(OR)
(b) Explain Depth-First Search and Breadth-First Search Graph Traversal in detail.
10. (a) Explain the Sequential Search and Binary Search in detail using C++ code.
(OR)
(b) i) Consider the following list of numbers.
{ 13,11,14,11,15,19,12,16,15,13,15,18,19 } sort these numbers using Quick sort and Write the steps required for Quick sort and its analysis.
ii) Discuss about Heap sort in detail.