

RAN-2411001003011001

S.Y.B.Sc. Computer Science (NCF-NEP) (Sem. III) Examination November - 2025
Major - 1 - 303 - CS - Data Structure Using C++

Time: 1 Hour]**[Total Marks: 25****સૂચના : / Instructions**

- (1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
 Fill up strictly the above details on your answer book

Seat No.:

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Student's Signature

Q-1. (A) Answer the followings. (Any Four)**[04]**

- What is the disadvantage of array data structure?
 - The amount of memory to be allocated should be known beforehand.
 - Elements of an array can be accessed in constant time.
 - Elements are stored in contiguous memory block.
 - Multiple other data structures can be implemented using arrays.
- Removal of item from the Stack is known as _____.
 - peek
 - push
 - pop
 - delete
- In linked list each node contain minimum of two fields. One field is data field to store the data and second field is?
 - Pointer to character
 - Pointer to integer
 - Pointer to node
 - None of these
- Which of the following algorithm does not divide the list?
 - Linear search
 - Binary search
 - Merge sort
 - Quick sort
- If a node having two children is to be deleted from binary search tree, it is replaced by its _____.
 - In-order predecessor
 - In-order successor
 - Pre-order predecessor
 - None

(B) Answer the followings in short. (Any Four)**[04]**

- Distinguish linear and Non-linear data structure.
- Define binary tree.
- What is the difference between array and linked list?
- Which important criteria must be satisfied to perform a binary search?
- All the perfect binary trees are complete binary tree (True/false). Justify your answer.

Q-2. Answer the following questions in detail.**[07]**

- (A) What is searching? List out its types. Explain binary search technique in detail with example.

OR

- (A) How circular queue is differ from simple queue? Write an algorithm to display elements of circular queue. [07]
- (B) What do you mean by singly linked list? How it is differ from doubly linked list? Compare them by giving its representation. [05]

Q-3. Answer any one. [05]

- (A) Explain LIFO structure in detail.
- (B) Input restricted double ended queue.
- (C) Write a detailed note on BST.
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