



RAN - 1911000103040001

RAN-1911000103040001**S.Y.B.C.A. (Sem-III) Examination****January - 2021****Data Structure****સૂચના : / Instructions**

નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.

Fill up strictly the details of signs on your answer book

Name of the Examination:

☛ **S.Y.B.C.A. (Sem-III)**

Name of the Subject :

☛ **Data Structure**Subject Code No.: **1911000103040001**

Seat No.:

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Student's Signature

Q:1 Answer the following in brief (Any Seven)**14**

1. Define: Data Structure. List various data structures.
2. Write the overflow and underflow conditions of Output Restricted Dueue.
3. List out applications of stack.
4. What is complete binary tree?
5. If a float array of size 3×3 starts at the location 1020 then what will be the address of an element (2,3)?
6. Write down polynomial representation of $3x^2 + 2xyz + z^2$
7. What are the necessary conditions to terminate recursive function?
8. Define Simulation.

Q:2 Write a short note on following (Any Two)**14**

1. Bubble Sort
2. Priority Queue
3. Recursion

- Q:3 Attempt the following (Any Two) 14**
1. What is stack? Write a program to perform PUSH, POP, PEEP and UPDATE algorithm.
 2. Write an algorithm to perform insert and delete operations on circular queue.
 3. What is searching? Differentiate sequential and binary search. Write an algorithm of sequential search.
- Q:4 Answer the following (Any Two) 14**
1. Explain Quick sort in detail.
 2. Write an algorithm to perform insert a node at beginning and delete a particular node from the middle of the doubly link list.
 3. What is an array? Explain various storage representation methods of an array.
- Q:5 Answer the following (Any Two) 14**
1. Explain 2-3 Tree in detail.
 2. Write an algorithm to create and display singly link list
 3. Create a tree for the arithmetic expression $A/B*(E-F*G)+H$ and write inorder, preorder and postorder traversal of the same tree.
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