RAN-1911000010304000 1

RAN-1911000103040001

S.Y.BCA (Sem.-III) Examination

October / November - 2019

Data Structure

સૂચના : / Instructions

(1)

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.BCA (Sem.-III)**

Name of the Subject :

☛ **Data Structure**

Subject Code No.: **1911000103040001**

Seat No.:

Student's Signature

Q:1 Answer in short (Any Seven) **14**

1) Differentiate linear and nonlinear data structure.
2) What is critical node?
3) Write an over flow and underflow condition of input restricted Dqueue.
4) What will be the location of front and rear pointers after three consecutive insert and 1 delete operation in simple queue of size 5 with starting location of front and rear at -1 position?
5) Write node representation of following polynomial equation.

   $4X^3-7X^2+8X+9$
6) Define simulation.
7) List out applications of stack.
8) Write a difference between Simple Queue and Circular Queue.

Q:2(A) What is stack? Write algorithms of various stack operations. 7

OR

(A) Explain AVL tree in detail. 7

(B) Explain storage representation of binary tree. 7

Q:3(A) Discuss advantages of dynamic memory allocation scheme. Which scheme is followed by link list and stack? Write an algorithm to sort a singly link list. 7

OR

A) Define Circular Queue. Discuss advantages of Circular Queue over simple queue. Write algorithms to insert and delete element in circular queue. 7

(B) Explain 2-Way merge sort in detail with example.

Q:4 Write a short note on following (Any 2) 14

1) Selection sort.

2) Output restricted D-queue.

3) Storage representation of array.

Q:5 (A) Write an algorithm to evaluate prefix expression. Convert the expression P*(Q+R/S)^T into prefix and evaluate this prefix expression using stack tracing with suitable value of P, Q, R, S, T 7

OR

(A) Write an algorithm to insert node at beginning and end of singly link list. 7

(B) Explain Tower of Hanoi as application of stack.

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