RAN-3539

B.C.A. SEM - III (CBCS) Examination

March / April - 2019

Data Structures

(Old or New to be mentioned where necessary)

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:

☛ **B.C.A. Sem - III (CBCS)**

Name of the Subject :

☛ **Data Structures**

Subject Code No.: | 3 | 5 | 3 | 9 |

Seat No.:

Student's Signature

(2)   Write to the point.

(3)   Provide examples and diagrams wherever appropriate / necessary.

(4)   Figures to the right indicates full marks to the question.

Q-l   Answer the following. (Any Seven)   **(14)**

1.   What is TOP pointer in stack?

2.   Explain difference between Simple queue and Circular queue.

3.   Differentiate between Singly link list and doubly link.

4.   Explain simple, strictly and complete binary tree.

5.   Convert Infix to postfix:- A/(B – C + D)*E + F/G.

6.   Explain sibling and forest in tree.

7.   Give polynomial representation of $2x^2 + 3xy + y^2 + z^2$.

8. Find the address of a[2] [1] element of an 2 dimension integer row major array, if base address is 1050.

9. What will be the position of front and rear if circular queue is full?

10. Which condition is not required in dynamic stack?

Q-2   Answer the following. (Any Two)   (14)

1. Explain 2:3 trees in details.

2. What is stack? Write algorithm for all stack operation.

3. What is D-queue? Write an algorithm to insert & delete elements from Output restricted D-queue.

Q-3   Answer the following. (Any Two)   (14)

1. What is queue? List out types of queue. Write an algorithm for circular queue.

2. What is sorting? Explain which is sorting technique is faster. Also write an algorithm to sort an element using Quick Sort.

3. What is searching? Differentiate between linear search and binary search. Write an algorithm for binary search.

Q-4   Answer the following. (Any two)   (14)

1. Write algorithm/program to create and delete node in singly link list.

2. Write an algorithm to convert infix expression to prefix.

3. Explain Insertion sort in detail.

Q-5   Write a Short note for the following. (Any two)   (14)

1. Simulation.

2. Tower of Hanoi.

3. Storage representation of binary tree.

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