

(21213)

Roll No.

(2)

BCA-III Sem.

18012

B. C. A. Examination, Dec. 2013

Data Structure Using C & C++

(BCA-302)

(New)

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt all the Sections as per instructions.

Section-A

(Very Short Answer Questions)

Attempt all the *five* questions. Each question carries 3 marks. Very short answer is required not exceeding 75 words. $3 \times 5 = 15$

1. What do you mean by transpose of an array?
2. How priority queues are different from simple queue?

3. Diagrammatically represents various types of linked list.
4. What is indexing in Binary Search Tree (BST)?
5. What is row major array? List its applications.

Section-B

(Short Answer Questions)

Attempt any *two* questions out of the following three questions. Each question carries $7\frac{1}{2}$ marks. Short answer is required not exceeding 200 words. $7\frac{1}{2} \times 2 = 15$

6. What do you mean by trace of a matrix? Design an algorithm.
7. Write a program that takes as input an integer number, split the number in its digits and stores the digits in a linked list structure.
8. Write short note on linear probing.

(3)

Section-C

(Detailed Answer Questions)

Attempt any *three* questions out of the following five questions. Each question carries 15 marks. Answer is required in detail. $15 \times 3 = 45$

9. Write a function to delete a node from a circular linked list.
10. Transform the following infix expression into postfix form : $Z + (y * x - (w / v \wedge u) * t) * S$.
11. Differentiate between (with examples) :
- (i) Binary tree and balanced binary tree
 - (ii) Column major and row major arrays
 - (iii) Single way list and two way list.
12. Draw the binary tree that represents the following infix expression : $((x - y) + z) / ((u - v) * w) + t$
and for the following prefix expression :

$$+ * x y | - z \vee w.$$

(4)

13. How insertion sort is different from selection sort ? Explain with help on algorithms and examples. Also enumerate the best sort.

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