BCA-12

June - Examination 2016

BCA Pt. II Examination

Data Structure and Algorithm

Paper - BCA-12

Time : 3 Hours]   **[Max. Marks :- 100**

Note: The question paper is divided into three sections A, B and C. Write answers as per given instructions.

Section - A $10 \times 2 = 20$

(Very Short Answer Questions)

Note: Answer **all** questions. As per the nature of the question delimit your answer in one word, one sentence or maximum upto 30 words. Each question carries 2 marks.

1) (i) Define data structure.

(ii) Define array.

(iii) Define stack

(iv) Define queue.

(v) Define Linked list.

(vi) Define Binary Search Tree.

(vii) Define graph.

(viii) Give the definition of the minimum spanning trees.

(ix) State Principle of Optimality.

(x) What is time complexity?

Section - B $4 \times 10 = 40$

(Short Answer Questions)

Note: Answer **any four** questions. Each answer should not exceed 200 words. Each question carries 10 marks.

2) Explain the type of data structure with example.

3) Give a Comparison of Linked List and Array.

4) Explain PUSH and POP operation in stack.

5) What are the various operations of queue? Explain with algorithm.

6) Write an algorithm for traversing a BST inorder, preorder and postorder form.

7) Write an algorithm to traversal graph in DFS.

8) Write a recursive function to compute factorial of a given number.

9) Explain the binary search technique with a suitable example.

Section - C $2 \times 20 = 40$

(Long Answer Questions)

Note: Answer **any two** questions. You have to delimit your each answer maximum upto 500 words. Each question carries 20 marks.

10) Explain height balance tree and AVL tree with suitable example.

11) Define singly link list. Explain the traversal and searching in singly link list with algorithm.

12) Explain insertion sort technique with suitable example.

13) Explain the concept of asymptotic notations and why do we use it? Explain different asymptotic notations.

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