BCA-12

June - Examination 2017

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 × 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 Sorting.

   (ii) Define non-linear data structure.

   (iii) Write applications of tree.

   (iv) What is the purpose of Dijkstra's Algorithm

   (v) In tree construction which is the suitable efficient data structure?

   (vi) How many minimum number of queues needed to implement the priority queue?

(vii) What do you mean by sibling?

(viii) What do you understand by Traversing?

(ix) Define overflow condition in a Stack.

(x) Explain what is meant by Bubble Sort.

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 best case, average case and worst case in analysis of algorithms.

3) What is the difference between a queue and a stack?

4) What is the run time complexity of selection sort and insertion sort?

5) Describe the purpose of garbage collection?

6) Write an algorithm for merge sort. State the complexity to sort *n*-numbers.

7) Write an algorithm to delete a node from Linked List.

8) Explain the binary heap tree with an example.

9) What are the different searching techniques available? Explain the hashing method.

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) Write an algorithm to convert infix to postfix using stack.

11) Write short note: (any two)

    (i)   Depth First Search

    (ii)   Breadth First Search

    (iii) BST

    (iv) Dynamic Programming

12) Explain and Construct binary tree from the tree traversals.

      In-order: HDIBEAFJCKG

      Pre-order: ABDHIECFJGK

13) Explain the Traveling sales man problem using Dynamic programming in detail.

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