BCA-12

December - 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 $10 \times 2 = 20$
(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)   What is linear data structure.

     (iii) Define Recursion.

     (iv) Write application of linked list.

     (v)   What do you mean by circular queue?

     (vi) What is AVL tree?

     (vii) What do you mean by tree traversing?

     (viii) Define BFS (Breadth First Search)

(ix) What is minimum spanning tree?

(x) What do you mean by Quick 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) What do you mean by complexity of algorithm? Explain best case and average case analysis.

3) Write the difference between array and linked list.

4) What is stack? Convert the following expression from infix to postfix using stack.

   (A+B) / C*(D – E) + F

5) What is priority queue? Write algorithm for insert element at the back of queue.

6) What do you mean by Heap tree? Explain with suitable example.

7) Write an algorithm to insert an element in BST.

8) What are the different types for representation of Graph? Explain.

9) Write an algorithm for Bubble sort. Explain with 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) What do you mean by Tower of Hanoi problem? Write a
recursive function to solve the tower of hanoi.

11) What in Binary Search Tree? Explain insertion and deletion of
a node in binary search tree.

12) Write an algorithm for merge sort. Sort given array list using
merge sort and also find out complexity for best case and worst
case.

243   534   255   178   296   321

13) Write short note : (Any two)
(i)   Depth First Search.
(ii)   Doubly Linked List.
(iii)   Hashing method for searching.
(iv)   Prim's Algorithm.

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