Roll No. | | | | | | | | | | | | Total No. of Pages : 2

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BCA (Sem.–2)

DATA STRUCTURES

Subject Code : BC-204 (2007 to 2010 Batches)

Paper ID : [B0208]

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and students has to attempt any FOUR questions.**

SECTION-A

1. Write briefly :

A. What is use of Big O notation?

B. Define time space trade off.

C. List various applications of Priority Queue.

D. What are various advantages of Linked Lists over Arrays?

E. Explain the need of garbage collection in dynamic memory allocation.

F. What is Threaded Binary Tree?

G. What is Post Order Traversal? Explain with the help of an example.

H. Differentiate between linear search and binary search.

I. Write an algorithm to perform bubble sort on an array of elements.

J. Explain concept of Heap.

SECTION-B

2. What is Data Structure? Explain various operations that can be performed on Data Structures.

3. What are various differences between stack and queue? Explain in detail implementation of stack using array and linked list.

4. Write algorithm for :

   a) Merge Sort

   b) Heap Sort

5. What is Recursion? Write an algorithm to find factorial of a number using recursion.

6. Define Binary tree. Write an algorithm for post - order traversal of binary tree.

7. Suppose a sequence of numbers is given :

   5, 1, 25, 15, 4, 46, 99, 37, 22, 10.

   Explain sorting of given sequence using :

   a) Insertion Sort

   b) Bubble Sort

   c) Quick Sort