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Total No. of Pages : 02

Total No. of Questions : 07

B.Sc.(CS) (2013 & Onwards) (Sem.-3)**DATA STRUCTURES****Subject Code : BCS-305****Paper ID : [71777]****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 a student has to attempt any **FOUR** questions.

SECTION-A**1. Answer briefly :**

- a) What is a Data structure?
- b) What is complexity of an algorithm? How complexity is measured?
- c) What do you mean by problem analysis?
- d) Differentiate between row major and column major order for storing 2- dimensional array.
- e) What is Binary search technique? What is its complexity?
- f) What is a circular linked list?
- g) Differentiate between static and dynamic storage management.
- h) What is a generalized list?
- i) How is a binary tree represented in memory?
- j) What are the various binary tree traversal techniques? Discuss any one in brief.

SECTION-B

2. What are the various types of data structures? Briefly discuss each.
3. Write the Bubble sort algorithm and explain its working with an example.
4. Define Queues. How queues are represented in memory? Write procedure for insertion and deletion of an element into a queue.
5. Write an algorithm or a program to create a doubly linked list and perform insertion & deletion in it.
6. Explain in detail garbage collection with their variations.
7. What is a Tree data structure? How is a tree represented in memory? Discuss the applications of trees with examples.

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