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Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech.(ECE)/(ETE) (2011 Onwards)**  
**B.Tech.(Electronics Engg.) (2012 Onwards)**  
**(Sem.-5)**

**DATA STRUCTURES**

Subject Code : BTCS-304

Paper ID : [A2102]

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 **FIVE** questions carrying **FIVE** marks each and students have to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

**SECTION-A****Q1 Answer briefly :**

- a) What is NULL pointer in C?
- b) What is dangling pointer and how to avoid it?
- c) What is the definition of Big O notation?
- d) Give the syntax of conversion from infix to postfix?
- e) How does priority queue work?
- f) Difference between array and linked list.
- g) Why B-tree is a self-balancing tree data structure?
- h) Write a short note on adjacency list.
- i) Define double hashing.
- j) What is complexity of Binary Search?

### SECTION-B

- Q2 Give the syntax of searching a specific element in an array.
- Q3 Write an operation to delete  $n$  nodes after  $m$  nodes of a linked list.
- Q4 How Trees provide an efficient insertion and searching? Show with example.
- Q5 Give the brief introduction to concept of collision and its resolution using open addressing.
- Q6 Illustrate the concept of breadth-first search traversing of graph by taking a suitable example.

### SECTION-C

- Q7 Explain various data types used in data structure with their syntax and applications.
- Q8 How a linear array is represented in memory? Explain the program which reads two matrixes.
- Q9 Write an algorithm to sort an array of integers in the descending order using insertion sort.