Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐☐   Total No. of Pages : 02

Total No. of Questions : 07

B.Sc.(IT) (2015 Batch)   (Sem.–3)
DATA STRUCTURES
Subject Code : BSIT-302
Paper ID : [74060]

Time : 3 Hrs.   **Max. Marks : 60**

INSTRUCTIONS 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 have to attempt any FOUR questions.**

SECTION-A

1. **Write briefly :**

    1. What is Big O notation?

    2. Differentiate between a stack and a queue.

    3. Discuss Bubble sort algorithm.

    4. What is a circular linked list? What is its use?

    5. Define Recursion.

    6. What are priority queues?

    7. Define an Array.

    8. How trees are represented in memory?

    9. What do you mean by garbage collection?

    10. Convert the following infix expression to postfix: A * B – C + D / (E * F) + G

SECTION-B

2. What do you mean by algorithm complexity? How is complexity of an algorithm measured?

3. Define Data Structures. Discuss the various types of data structures.

4. Differentiate between linear search and binary search techniques and also give their complexity.

5. Define Queues. How queues are represented in memory? Write procedure for insertion and deletion of an element into a queue.

6. Define a Linked List. How a linear linked list is represented in memory? Write an algorithm to insert, delete and search a node in a linked list.

7. What is a Binary tree? What are the types of binary tree? Discuss the binary tree traversal methods.