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Total No. of Pages : 02

Total No. of Questions : 09

M.Sc. (Computer Science) (2015 & Onwards) (Sem.-2)**DATA STRUCTURES****Subject Code : MSC-203****Paper ID : [A2572]****Time : 3 Hrs.****Max. Marks : 60****INSTRUCTION TO CANDIDATES :**

1. **SECTIONS-A, B, C & D** contains **TWO** questions each carrying **TEN** marks each and students has to attempt any **ONE** question from each **SECTION**.
2. **SECTION-E** is **COMPULSORY** consisting of **TEN** questions carrying **TWENTY** marks in all.
3. **Use of non-programmable scientific calculator is allowed.**

SECTION-A

Q1 Explain time and space Algorithmic complexity of various searching and sorting algorithms with elaborations.

Q2 What is the need of Stack, how it is helpful in infix, postfix and prefix notations?

SECTION-B

Q3 Explain the need of AVL tree and also explain its different rotations.

Q4 Write the algorithm for deletion in Binary tree.

SECTION-C

Q5 Write the Algorithm for insertion and deletion of node in Graph.

Q6 Write Dijkstra's algorithm for shortest distance calculation.

SECTION-D

Q7 Explain Hashing with its different types.

Q8 Write the algorithm for Merge sort.

SECTION-E

Q9 Answer briefly :

- a) Explain Static and dynamic memory management.
- b) Discuss Priority Queue.
- c) Explain Tree representation using Link List.
- d) Explain different types of Graphs.
- e) Explain Binary search.
- f) Discuss Min Heap.
- g) Explain prefix expression using example.
- h) Discuss little-O Notation.
- i) Explain Heap Sort.
- j) Discuss binary search procedure.