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

Total No. of Questions: 09

M.Sc.(IT) (2015 Onwards) (Sem. – 2)
DATA STRUCTURES
M Code: 72730
Subject Code: MSIT-203
Paper ID: [72730]

Time: 3 Hrs. Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:
1. **SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks 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.**

SECTION A

1. What is data structure? Explain different types of data structures with their applications.

2. What do you mean by algorithm complexity? Explain time and space tradeoff among algorithm?

SECTION B

3. Define tree with the help of example. How tree can be represented in memory by using Linked representation. Give example.

4. What is meant by traversing? List the methods of node traversing. Explain briefly.

SECTION C

5. Explain different types of Graphs. How can graphs be represented using Adjacency Matrix?

6. Describe Dijkstra's Algorithm for shortest distance calculation by taking suitable example.

SECTION D

7. What do you mean by searching? Explain the concept and efficiency of Linear and Binary Search algorithms.

8. Explain the working of Insertion Sort with the help of an example?

SECTION E

9. Write short notes on

   a) Doubly Link List

   b) Big-O Notation

   c) Prefix and Postfix

   d) Static Memory Management

   e) Collision in Hashing

   f) Priority Queue

   g) B+ Tree

   h) Garbage Collection

   i) Heap Creation

   j) Arrays of pointers