

# Data Structures

Total Marks: 100

Total Time (minutes): 180

Answer all questions.

Q1. Explain the concept of Abstract Data Types (ADTs) with examples.

*[15 Marks]*

Q2. Write algorithms for insertion and deletion operations in a linked list.

*[15 Marks]*

Q3. Differentiate between stack and queue. Implement a circular queue using arrays.

*[15 Marks]*

Q4. Describe different tree traversal techniques with examples.

*[20 Marks]*

Q5. What is hashing? Explain collision resolution techniques with examples.

*[15 Marks]*

Q6. Discuss different sorting algorithms. Analyze their time complexities.

*[20 Marks]*