

Dr. Babasaheb Ambedkar Open University
Term End Examination July – 2026

Course	: BSCIT	Date	: 22/07/2026
Subject Code	: BSCITRMA-202	Time	: 11:30am to 01:45pm
Subject Name	: Data Structures	Duration	: 02.15 Hours
		Max. Marks	: 70

Section A

Answer the following (Attempt any three) (30)

1. Differentiate Linear and Non-Linear Data Structures with suitable examples.
2. Explain Linked List in detail. Discuss its advantages, disadvantages and representation in memory.
3. What is Queue? Explain various queue operations and applications of Queue.
4. Explain Binary Tree. Discuss tree terminologies and different tree traversals with suitable examples.
5. List and explain Sorting Techniques in detail.

Section B

Answer the following (Attempt any four) (20)

1. Explain Abstract Data Type (ADT) and its importance.
2. Describe Array Traversal and Array Deletion operations.
3. Explain Circular Linked List and its applications.
4. Differentiate Stack and Queue.
5. Explain Graph Terminologies and Graph Representation.
6. Discuss File Structure and its importance in data organization.

Section C

Part – A (Multiple Choice Questions) (10)

Q.1 Which of the following is a Linear Data Structure?

- | | |
|----------|------------|
| A) Tree | B) Graph |
| C) Array | D) Network |

Q.2 Which data structure follows FIFO principle?

- | | |
|----------|----------|
| A) Stack | B) Queue |
| C) Tree | D) Graph |

Q.3 Which data structure follows LIFO principle?

- | | |
|----------|----------------|
| A) Queue | B) Linked List |
| C) Tree | D) Stack |

Q.4 Which searching technique requires sorted data?

- | | |
|----------------------|-------------------|
| A) Sequential Search | B) Linear Search |
| C) Binary Search | D) Indexed Search |

Q.5 The first node of a linked list is accessed using:

- | | |
|-------------------------|----------|
| A) Tail Pointer | B) Index |
| C) Header/Start Pointer | D) Root |

Q.6 Which traversal visits Left Subtree, Root, Right Subtree?

- | | |
|-------------|----------------|
| A) Preorder | B) Postorder |
| C) Inorder | D) Level Order |

Q.7 Which data structure is suitable for recursion implementation?

- A) Queue B) Stack
- C) Graph D) Tree

Q.8 A Binary Tree node can have maximum:

- A) 1 child B) 2 children
- C) 3 children D) Unlimited children

Q.9 Which data structure is non-linear?

- A) Array B) Queue
- C) Stack D) Graph

Q.10 Which operation removes an element from a Queue?

- A) Push B) Pop
- C) Enqueue D) Dequeue

Part – B (State whether the following statements are true or false)

(10)

- 1 Linked List is a dynamic data structure.
- 2 Array elements are stored in contiguous memory locations.
- 3 Queue follows Last-In First-Out principle.
- 4 Binary Search works efficiently on sorted data.
- 5 Stack insertion operation is called Push.
- 6 A Tree is a non-linear data structure.
- 7 Graphs consist of vertices and edges.
- 8 Circular Linked List connects the last node to the first node.
- 9 In a Binary Tree, every node must have exactly two children.
- 10 File structures are used for permanent storage of data.
