

(FOR THE CANDIDATES ADMITTED

25UIT205

DURING THE ACADEMIC YEAR 2025 – 2026 ONLY)

REG.NO. :

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI

END-OF-SEMESTER EXAMINATIONS : MAY 2026

B.Sc IT

MAXIMUM MARKS: 75

SEMESTER : II

TIME : 3 HOURS

PART - III

DATA STRUCTURES

SECTION – A

(10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.

(K1)

1. _____ data structure allows efficient insertion and deletion.
A. Array B. Linked List C. Matrix D. String
2. _____ operation is used to insert an element into a stack.
A. Insert B. Add C. Push D. Append
3. Which type of queue allows insertion and deletion at both ends?
A. Simple Queue B. Circular Queue C. Priority Queue D. Deque
4. Binary search can be applied only on _____
A. Unsorted array B. Linked list C. Sorted array D. Stack
5. Hashing is mainly used for _____
A. Sorting B. Searching C. Traversing D. Recursion

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES

(K2)

6. What is a circular linked list?
7. What is stack overflow?
8. List two applications of queues.
9. What is a full binary tree?
10. Define a spanning tree.

SECTION – B

(5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.(K3)

11. a) Explain basic array operations.
(OR)
b) Discuss singly linked list and its basic operations.
12. a) Explain Stack as an Abstract Data Type.
(OR)
b) Articulate Linked List Representation of Stack.
13. a) Explain Queue as an Abstract Data Type.
(OR)
b) Use Priority Queue.

14. a) Discover Types of Binary Trees.
(OR)
b) Explain Indexed Sequential Search.
15. a) Explain graph traversal methods.
(OR)
b) Explain Quick Sort and Merge Sort.

SECTION – C **(5 X 8 = 40 MARKS)**
ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.
(K4 (Or) K5)

16. a) Explain arrays in C and discuss their operations.
(OR)
b) Illustrate doubly linked list in detail with advantages.
17. a) Relate Stack with Array Implementation and Algorithm for Push and Pop.
(OR)
b) Explain Stack and Recursion with Example.
18. a) Explain Queue and its operations in detail.
(OR)
b) Explain representation of queues using arrays and linked lists.
19. a) Correlate Binary Tree Representation and Operations.
(OR)
b) Explain Counting Number of Nodes in Binary Tree.
20. a) Categorize different sorting algorithms in detail.
(OR)
b) Illustrate hashing in detail with collision resolution techniques.
