Data Structure Using C (313301)

Most repeated questions — MSBTE K-scheme papers S-2026, W-2025, S-2025, W-2024

How to read: **Asked in** shows the MSBTE papers where the same question came (same idea, any wording). **High** = came in 3 or 4 of the 4 papers, **Medium** = 2 papers, **Low** = 1 paper. Prepare High ones first.

Top questions (came in all 4 papers)

1. Binary search — find position of element (step-wise) / C program *(4 marks)*
2. Sorting numerical — selection sort or insertion sort, output after each pass *(4/6 marks)*
3. Infix to postfix conversion using stack (step-wise table) *(4/6 marks)*
4. C program / function for insert and delete on linear queue *(4/6 marks)*
5. Tree terminology: leaf, degree, sibling, depth, level, ancestor, in-degree *(2/4 marks)*
6. Expression tree for given expression *(4/6 marks)*
7. Construct BST and write inorder, preorder, postorder *(4/6 marks)*
8. Tree traversal — types / algorithm for preorder, inorder, postorder *(2/4 marks)*

Unit I — Introduction to data structures

Question / topic	Marks	Asked in	Probability
Define data structure; classification / operations / applications of data structure	2	S-26, S-25, W-24 **(3/4)**	**High**
Linear vs non-linear data structure (explain / differentiate)	4	S-26, W-25, W-24 **(3/4)**	**High**
Abstract Data Type (ADT) — define / justify stack as ADT	2	S-26, W-25 **(2/4)**	**Medium**
Static vs dynamic memory allocation	2/4	S-26, W-25 **(2/4)**	**Medium**

Unit II — Searching and sorting

Question / topic	Marks	Asked in	Probability
Binary search — find position of element (step-wise) / C program	4	S-26, W-25, S-25, W-24 **(4/4)**	**High**
Sorting numerical — selection sort or insertion sort, output after each pass	4/6	S-26, W-25, S-25, W-24 **(4/4)**	**High**
Bubble sort — working / advantages / program	4	W-25, S-25, W-24 **(3/4)**	**High**
Linear vs binary search; define searching; working of linear search	2/6	W-25, S-25 **(2/4)**	**Medium**
List sorting techniques / bubble vs selection sort	2/4	S-26, W-24 **(2/4)**	**Medium**

Unit III — Linked list

Question / topic	Marks	Asked in	Probability
Linked list concept with terms: node, next pointer, null pointer, empty list (diagram)	4	W-25, S-25, W-24 **(3/4)**	**High**
Insert a node at beginning — algorithm / C program	4	S-26, W-25, S-25 **(3/4)**	**High**
Singly vs doubly linked list (minimum six points)	4/6	S-26, S-25, W-24 **(3/4)**	**High**
Circular linked list — diagram and advantages	4/6	W-25, S-25 **(2/4)**	**Medium**
Draw structures: singly, doubly, circular singly, circular doubly list	4	S-26, W-24 **(2/4)**	**Medium**
Create SLL with given data and search / show step-by-step	4/6	W-25, W-24 **(2/4)**	**Medium**
C program: insert at end / random position, delete from end, display	4/6	S-26, S-25 **(2/4)**	**Medium**
Advantages / applications of linked list	2/4	S-26, W-24 **(2/4)**	**Medium**

Unit IV — Stack and queue

Question / topic	Marks	Asked in	Probability
Infix to postfix conversion using stack (step-wise table)	4/6	S-26, W-25, S-25, W-24 **(4/4)**	**High**
C program / function for insert and delete on linear queue	4/6	S-26, W-25, S-25, W-24 **(4/4)**	**High**
Applications of stack	2/6	S-26, S-25, W-24 **(3/4)**	**High**
Stack: LIFO, PUSH and POP operations	2/4	S-26, W-25, S-25 **(3/4)**	**High**
Types of queue / circular queue (define, compare with linear)	2/4	S-26, S-25, W-24 **(3/4)**	**High**
Postfix expression evaluation using stack	6	W-25, S-25 **(2/4)**	**Medium**
Stack overflow and underflow with example	4	W-25, S-25 **(2/4)**	**Medium**
Applications of queue	2/4	S-26, W-25 **(2/4)**	**Medium**
Effect of INSERT / DELETE on linear queue (diagram)	4	W-25, S-25 **(2/4)**	**Medium**
Priority queue / queue using linked list / stack vs queue	2/4/6	W-25, W-24 **(2/4)**	**Medium**
Effect of PUSH / POP on stack (diagram)	4	W-24 **(1/4)**	**Low**
Infix to prefix conversion / recursion program	6	W-24 **(1/4)**	**Low**

Unit V — Trees

Question / topic	Marks	Asked in	Probability
Tree terminology: leaf, degree, sibling, depth, level, ancestor, in-degree	2/4	S-26, W-25, S-25, W-24 **(4/4)**	**High**
Expression tree for given expression	4/6	S-26, W-25, S-25, W-24 **(4/4)**	**High**
Construct BST and write inorder, preorder, postorder	4/6	S-26, W-25, S-25, W-24 **(4/4)**	**High**
Tree traversal — types / algorithm for preorder, inorder, postorder	2/4	S-26, W-25, S-25, W-24 **(4/4)**	**High**
Heap — define / explain with example	2/4	S-26, W-25, S-25 **(3/4)**	**High**
General tree vs binary tree / binary tree and BST definitions	2/4	S-26, S-25, W-24 **(3/4)**	**High**

Note: Based on the MSBTE question papers S-2024 to S-2026 available on msbte.ac.in (K-scheme). This is practice guidance prepared by Ananda Technologies — it is **not** a prediction of the exam and not an official MSBTE document. Study the full syllabus. Free for students — anandatechnologies.in