Syllabus of AAPS for MTE

Introduction and Time & Space Complexity: Time and space complexity, Asymptotic Notations, Analysis of Algorithm Efficiency.

Arrays: Basic operations on arrays, Problems on Prefix and Suffix, sliding window, 2 pointers, Arrays and Digit Manipulation, String Matching Algorithms (Naive, Rabin Karp, and Knuth Morris and Pratt (KMP), Bit Manipulation.

Linked List, Stack, Recursion and Backtracking:
Linked List: Singly Liked List, Doubly Linked List, Circular Linked List, Applications-
Stack: Representation, Basic operations, Implementation, Applications.
Recursion and backtracking: Analysis of Backtracking Algorithm, Types, Problems on n-Queens, subset sum problem, Hamiltonian Cycle, State-Space Tree Applications.

SORTING AND SEARCHING:
Searching: Problems related to Linear Search, Binary Search, Problems using Binary Search
Sorting: Types, Selection Sort, Bubble Sort, Insertion Sort, Heap Sort, Quick Sort, Merge Sort, Time Complexity. Hashing Universal hashing, optimization problems based on searching and sorting. Queues: Representation- Basic Operations, Applications, Deque, priority queue.

Note: Kindly ask students to try relevant problems from Geeks for Geeks.