

Asymptotic Notations

Big O Notation
Worst Case or Upper Bound

Omega Notation
Best Case or Lower Bound

Theta Notation
Average Case

Array

Linked
List

Stack

Queues

All Trees

Heap

Hashing

Graphs

Traversing, Insertion,
Deletion, Searching

General tree, Binary tree, BST, AVL, Heap,
B-Trees

DFS & BFS, MST, Prims and Kruskals,
Shortest Path Algorithms,
Dijkstra, Bellman-Ford.

Selection
 $O(n^2)$ $\theta(n^2)$ $\Omega(n^2)$
Bubble
 $O(n^2)$ $\theta(n^2)$ $\Omega(n)$
Insertion
 $O(n^2)$ $\theta(n^2)$ $\Omega(n)$
Heap, Merge
 $O(n \log(n))$ $\theta(n \log(n))$
 $\Omega((n \log(n)))$
Quick
 $O(n^2)$ $\theta(n \log(n))$ $\Omega((n \log(n)))$

Binary Search,
Merge Sort,
Quick Sort,
Closest Pair of
Points,
Strassen's Multi.
Karatsuba,
Cooley-Tukey

Divide and Conquer

CPU Scheduling,
Knapsack Problem,
Huffman Coding,
Prims and Kruskals,
Dijkstra,
OS operations all
included.

Greedy

0/1 knapsack
problem,
Mathematical
optimization
problem,
Time sharing,
Reliability design
problem

Dynamic

Brute Force
Approach,
Graph coloring ,
Hamiltonian Cycle

Backtracking

Type of Algorithms