Data Structures and Algorithms

Q1: What is the time complexity of searching an element in a balanced binary search tree?

A) O(1)
B) O(log n)
C) O(n)
D) O(n log n)

Answer: B) O(log n)

Q2: Explain the difference between a stack and a queue.

Answer: A stack follows LIFO (Last In, First Out) order, whereas a queue follows FIFO (First In, Firs

Q3: Which sorting algorithm has the worst-case time complexity of O(n^2)?

A) Merge Sort
B) Quick Sort
C) Bubble Sort
D) Heap Sort

Answer: C) Bubble Sort

Q4: What is the main advantage of a linked list over an array?

Answer: A linked list allows dynamic memory allocation and efficient insertion/deletion at arbitrary