B.Tech CSE, SE and CC

Class Test – 1 Syllabus (2022-23)

Semester –4

Subject Name: DSA

Assignment-3

1. Explain Asymptotic Notations in detail.
2. What is the worst-case complexity of binary search? Write an algorithm for binary search.
3. What is time and space analysis? State and explain time analysis for linear search and binary search method.
4. Explain Divide and Conquer in details.
5. What is an algorithm? What are the characteristics of an algorithm?
6. Explain the Big-Oh computation for each of the following control structures.
   (a)If-then-else
   (b)for loop
   (c) Inner outer for loop
7. Define O, Oh megha , θ notations with example.
8. Analyze the Insertion Sort algorithm in best and worst case.
9. Discuss Red – black trees with insertion, deletion and rotation.
10. Explain properties of red – back trees.
11. Explain dynamic programming.
12. Discuss algorithm of Depth First Search (DFS) traversal for a Graph.
13. Write a short note on greedy algorithms.
14. Algorithm for left rotate in red - black trees.
15. How to augment a data structure?
16. Elements of greedy strategy.
17. Discuss algorithm of Breadth First Search (BFS) traversal for a Graph.
18. Discuss augmenting data structures.
19. Dijkstra's algorithm for finding shortest path.
20. Write a general structure of greedy algorithms.