



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**

**(Autonomous)**

Siddharth Nagar, Narayanavanam Road – 517583

**QUESTION BANK (DESCRIPTIVE)**

**Subject with Code: Advanced Data Structures (19CS5001)**

**Course & Branch: M.Tech - CSE**

**Year & Sem: I-M.Tech & I-Sem**

**Regulation: R19**

**UNIT –I**

1. a) What is Dictionary?  
b) How to implement dictionaries?
2. Define Hashing? Explain Review of Hashing and Hash Function?
3. Write about linear probing and quadratic probing?
4. Explain Collision Resolution Techniques in Hashing?
5. What is Double Hashing technique?
6. Discuss the concept of Rehashing?
7. Explain Extendible Hashing technique?
8. What is skip list? Write about open addressing technique?
9. a)What is Data structure?  
b) Explain Dictionary Abstract Data Type?
10. What is chaining? Write about separate chaining and open addressing?

**UNIT-II**

1. How search and update operations performed on skip lists?
2. Discuss in brief Binary search trees with an example?
3. With a detailed note on AVL trees with its operations and example?
4. What are Binary tree .Explain with an example?
5. Explain B- trees and its operations?

6. Explain Red black trees with an example?
7. What are 2-3 trees how it works with data structures discuss with an example?
8. a) What is skip list?  
b) Explain search and update operations on skip lists?
9. Explain Splay- trees with neat diagram?
10. Write a java Program to implement binary search trees?

### UNIT-III

1. Explain The Longest Common Subsequence Problem (LCS)?
2. Describe The Knuth-Morris-Pattern Algorithm?
3. Discuss the working of Brute force pattern matching?
4. Write about The Boyer-Moore Algorithm?
5. How to Apply Dynamic Programming to the LCS?Justify
6. Write a detailed note on the Huffman Coding Algorithm?
7. Define Tires and discuss the function Suffix Tries with an example?
8. How Compressed Tries work explain its operations.
9. Explain Standard Tries with an example?

### UNIT-IV

1. How to construct a Priority Search tree? Explain with neat diagram.
2. Explain how to Search a Priority Search Tree works and its operations?
3. What is Priority Range Trees discuss with an example?
4. Describe Quad trees and its functions?
5. Explain k-D Trees with an example?
6. a) What is computational geometry?  
b) Explain One Dimensional Range Searching with an example?
7. How Two Dimensional Range Searching done in computational geometry explain with an example?

**UNIT-V**

1. What is hashing? Explain Recent Trends in Hashing?
2. Explain various computational geometry methods for efficiently solving the new evolving problem?
3. What is tree? Explain binary search tree operations in detail?
4. Explain where hashing is used in real time with an example?
5. What is a Binary Tree? Explain the preorder, in order and post order Traversals? Write the code for Binary Tree Insertion.
6. Explain about the Binary Search Tree? What are the rules to create a BST? Give an example.
7. Write the C++ code for Deletion operation of Binary Search Tree(BST)? Delete a leaf node, delete a node having one child and delete a node having two children's.
8. Explain the following in detail:
  - a. Static Hashing.
  - b. Dynamic Hashing.
9.
  - a. Explain Skip List. Why it is called as a Randomized Data structure.
  - b. Explain the Operations Insertion, Deletion and Searching with a Skip List.
10.
  - a. Explain the issues with AVL Tree and recommend how Red Black trees can be a solution for it.
  - b. Explain the properties of Red Black Trees with an example.

**Prepared By:** Dr.P.Kavitha Rani., Prof-CSE

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