SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR

(Autonomous)

Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject with Code : AdvancedData Structures (18CS5001) **Course & Branch**: M.Tech - CSE
Year & Sem: I-M.Tech & I-Sem **Regulation:** R18

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. Explain Double Hashing technique?
6. Explain Rehashing technique?
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. Explain search and update operations on skip lists?
2. Explain Binary search trees with an example?
3. Explain about AVL trees with an example?
4. Explain Binary tree with an example?
5. Explain B- trees with an example?

6. Explain Red black trees with an example?
7. Explain about 2-3 trees with an example?
8. a) What is skip list?

   b) Explain search and update operations on skip lists?
9. Explain Splay- trees?
10. Write a java Program to implement binary search trees?

Unit-III

1. Explain The Longest Common Subsequence Problem (LCS)?
2. Explain The Knuth-Morris-Prattern Algorithm?
3. Explain Brute force pattern matching?
4. Write about The Boyer-Moore Algorithm?
5. Explain how to ApplyDynamic Programming to the LCS Problem?
6. Explain the Huffman Coding Algorithm?
7. ExplainSuffixTries with an example?
8. ExplainCompressed Trieswith an example?
9. Explain Standard Tries with an example?

Unit-IV

1. Explain how to construct a Priority Search tree?
2. Explain how to Search a Priority Search Tree?
3. Explain Priority Range Trees with an example?
4. Explain Quad trees with an example?
5. Explain k-D Trees with an example?
6. a) What is computational geometry?

   b) Explain One Dimensional Range Searching with an example?
7. Explain Two Dimensional Range Searching 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, inorder and postorder 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 childrens.
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

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