Seat No: _____ **Enrollment No: _____**

PARUL UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

M.Tech. Winter 2019 - 20 Examination

Semester: 1 **Date: 17/12/2019**
Subject Code: 203202102 **Time: 10:30 am to 01:00 pm**
Subject Name: Advanced Data Structures **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 A) What is Collision? Explain different collision resolution technique in detail with example **(05)**
B) Explain different types of string operations in detail with example. **(05)**
C) What is Skip List? Explain Searching Algorithm of Skip List ? **(05)**

Q.2 **Answer the following questions**. (Attempt any three) (Each five mark) **(15)**
A) Solve the example of Extendible hashing where bucket size = 4 and g=2 and hash function is h(k) = value mod 64
288,8,1064,120,148,204,641,700,258,1586,44.
B) Explain Brute Force String Matching algorithm in detail
C) Apply Boyer moore algorithm for String Matching Algorithm
Pattern : **"tooth"**
Text : **"trusthardtoothbrushes"**
D) Construct a binary tree from the traversals given below:
Inorder: {4, 2, 5, 1, 3, 6}
Preorder: {1, 2, 4, 5, 3, 6}
Find out the post order of the given tree.

Q.3 A) What is Tries? Draw a Standard Tries and Compressed Tries of
S = { bear, bell, bid, bull, buy, sell, stock, stop } **(07)**
B) Apply Linear probing , Quadratic probing on the following elements
34,97,24,22,11,8,27,53 where m=10 hash function H(k) = value mod m. **(08)**

OR

B) What are the rules for creation of Red-Black Tree? Construct a Red Black Tree Insertion of the following value. **(08)**
2, 1, 4, 5, 9, 3, 6, 7

Q.4 A) Explain different types of rotations performed in AVL Tree ?
Construct a AVL Tree Insertion of the following elements. **(07)**
50,40,30,60,70,20,25,27,26

OR

A) Construct a 2-3 Tree of the elements
Insert : 500,650,750,450,300,200,800,880,900,1000. **(07)**
B) Write down the pseudocode of LCS algorithm. Find longest common subsequence of following two strings X and Y using dynamic programming. **(08)**
X=AGGTAB , Y= GXTXAYB.