**Department of Computer Science & Engineering**

**ASSIGNMENT 2**

**DATA STRUCTURES (CIC-209)**

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| **S. NO** | **QUESTIONS** | **CO#** |
|  | **Construct the binary tree T from the following sequence**   1. **Preorder:A,B,D,G,C,E,H,I,F**   **Inorder: D,G,B,A,H,E,I,C,E**   1. **Inorder:E,A,C,K,F,H,D,B,G**   **Preorder:F,A,E,K,C,D,H,G,B** | **CO2** |
|  | **Why height balancing tree is required ? Create AVL Tree of the following a,z,b,y,c,x,d,w,e,v,f with appropriate rotations** | **CO2** |
|  | **Write a C program to construct a Binary Search Tree and its traversals**   1. **Inorder** 2. **Preorder** 3. **Postorder** 4. **Level-by-level** | **CO2** |
| **4.** | **Constuct an expression tree for the following expression**  **A+(B-C)\*D+(E\*F)** | **CO2** |
| **5.** | **Derive the complexity of a binary tree with n nodes and height h and O(log2n)** | **CO2** |
| **6.** | **Define B tree structure properties. Consider a B+ tree in which the maximum number of keys in a node is 7.What is the minimum number of keys in any non-root node ?Explain insertion and deletion process in a B tree?** | **CO2** |
| **7.** | **What is heap property? Define priority queue. Implement Max-heap and Min-heap** | **CO2** |
| **8.** | **Define an AVL tree .What are the different AVL tree rotations? Construct an AVL Tree for the following list of numbers**  **10,5,8,12,18,22,1,4,6,30** | **CO2** |